Manitoba

Annual Report 1987 - 88

Natural Resources

Manitoba

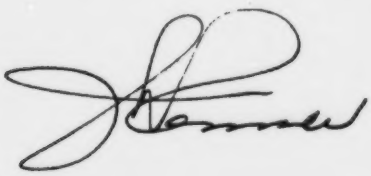
Minister of
Natural Resources

His Honour
George Johnson
Lieutenant Governor of Manitoba

Your Honour:

I am pleased to present to you the fifty-seventh Annual Report of Manitoba Natural Resources, recording the activities of the department for the fiscal year ending March 31, 1988.

Yours truly,



Jack Penner,
Minister

Manitoba

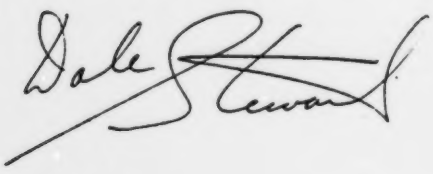
Deputy Minister of
Natural Resources

The Honourable Jack Penner
Minister of Natural Resources

Sir:

I am pleased to provide the Annual Report of Manitoba Natural Resources for the fiscal year 1987-88.

Respectfully submitted,

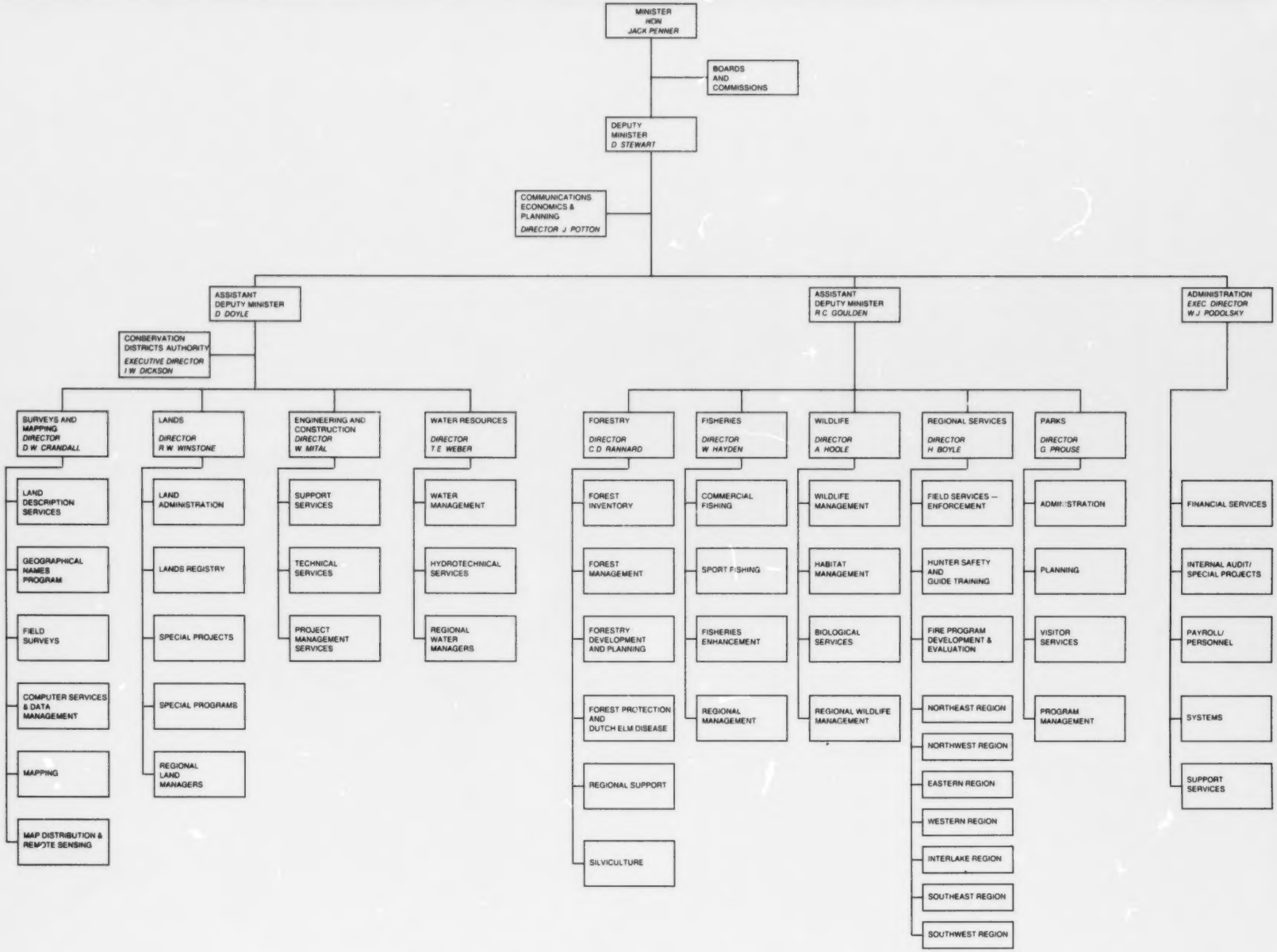


Dale Stewart
Deputy Minister

Table of Contents

TITLE	PAGE
Executive Summary	
Introduction	11
Administrative Services Division	12
Communications, Economics and Planning	14
Conservation Districts Authority	19
Engineering and Construction	23
Fisheries	27
Forestry	35
Lands	49
Parks	54
Regional Services	64
Surveys and Mapping	82
Water Resources	85
Wildlife	96
Appendixes	
Appendix I: Summary of Revenue and Expenditures	106
Appendix II: Summary of Expenditures by Appropriation	107
Legislators' Index	125

Organization Chart — Manitoba Natural Resources



Executive Summary

During the 1987-88 fiscal year, Manitoba Natural Resources continued to provide services in support of its mandate; the economic development of the province and the enhancement of the quality of life of its citizens. Emphasis continued to be placed on balancing the demands of today with the needs of tomorrow.

A study was undertaken of water resources in the Assiniboine South-Hespeler area. The intent was to identify sources of water in the region which could further develope the agricultural potential of the area. Towns and industries in the area had also expressed an interest in locating supplementary water supplies. The study examined eight alternative water supply projects that would enhance economic development within the area. A report with recommendations was submitted to the Minister of Natural Resources in March.

Work continued to identify the potential benefits and costs of developing headwater storage along the Manitoba Escarpment from the Porcupine Hills to the Pembina Hills. It was determined that of 123 potential dam sites investigated, only 12 would be effective in reducing flood and erosion damages. Three of these sites were identified as offering the greatest potential. It does not appear that the proposed headwater storage dams will have any significant effects on related resources.

Fiscal year 1987-88 was a buoyant one for the forest products industry. Most mills, especially in the pulp and paper sector, reported operating at or near capacity throughout most of the year. Significant interest has been shown in the use of trembling aspen for a variety of purposes. Lumber markets remained fairly stable throughout the year.

Silvicultural activity was undertaken on a total of 15,240 hectares, a 16% increase over the previous year. Half of this work was carried out by the forest industry, the rest by the Forestry Branch. The number of bareroot and containerized seedlings planted was up by 30% to 13.4 million.

Although many trees in wild stands continued to succumb to Dutch Elm Disease, infected elms were comparatively few in urban centres where control programs are in operation. Less than 1% of Winnipeg's elms were diseased. The areas experiencing the heaviest losses to Dutch Elm Disease were along southern Manitoba rivers.

The Conservation Districts Authority continued to foster the development of district resource management plans. This planning process has been initiated in all five Conservation Districts. Two district plans are now complete and will be submitted for Ministerial approval in the new year.

A province wide inventory and classification of fish habitat was initiated. A number of new angling regulations were implemented in order to manage the harvest without impairing opportunities for recreational angling. Most regulation changes involve lower catch or size limits. A fish rehabilitation management plan was initiated on Lake Winnipegosis to address concerns arising out of the harvest. Installation of aeration equipment in the Deloraine Reservoir and Lake Stormon assured year-round survival of fish in these water bodies that in the past have been prone to winter-kill.

In excess of 100.3 million fry were produced from walleye eggs collected from five spawn collection sites. Of this production, 75% were allocated to commercial fishing lakes, while the balance were stocked in sport fishing waters.

The wild rice crop in 1987 established an all time record high for the province. All areas of the province experienced a good crop while bumper crops occurred on some lakes. Northern lakes continued to increase their share of the overall provincial harvest.

The value of the fur harvest in Manitoba dropped $1.5 million from the previous year. Although furbearer populations were stable to increasing, market demand for fur weakened because of anti-trapping attitudes in Europe and the stock market decline.

In June, the Oak Hammock Marsh Wildlife Management Area was declared a Wetland of International Importance under the Ramsar convention. The Ecologically Significant Areas program was expanded to include a Voluntary Protection aspect. By fiscal year end, 11 areas containing 9,574 hectares had been designated as Voluntarily Protected Areas.

The unusually mild winter of 1987/88 resulted in the Winnipeg deer herd relocation project moving fewer deer than had been planned. Ample natural food supplies and lack of snow made it difficult to lure deer to the baited capture sites.

Highlights of the year for provincial parks included the approval of the HeclaGrindstone Management Plan, the expansion of the campground volunteer host program and the completion of a set of three video cassettes and support material designed to convey information about the parks system to Manitoba students.

Two branches of the department worked together during the year to develop a more effective enforcement strategy to control liquor abuse and the resulting rowdyism in provincial parks. A multi-step, low tolerance program was developed for implementation during the 1988 season.

In May of 1987, a fire in the Wallace Lake area destroyed 25,000 hectares of forest, 54 cottages, a lodge and most of the campground at the lake. This fire provided the first real test of the department's Crisis

Communications Plan which had been developed the previous year and which proved effective in this situation. Overall during the year, 523 forest fires burned in excess of 170,000 hectares.

A major project for the Remote Sensing Centre was the development of a Crop Information System. Beginning with the 1988 crop year, this program will provide users with a method of assessing acreages and yields of major crops around the world as they are growing.

Internally, the department put greater emphasis on Training, Employee Development and Affirmative Action programs. The department's Affirmative Action Plan was approved by the Central Affirmative Action Committee and implementation commenced. Departmental policies, procedures and guidelines were developed for the orderly implementation of The Freedom of Information Act.

The 1987-88 fiscal year was a challenging one for the staff of Manitoba Natural Resources in carrying out their mandate of protecting, conserving, managing and developing the Province's forest, fish, wildlife, water, Crown land and park land resources. All of these resources were managed and allocated in a manner which endeavoured to maximize both the short and the long term social and economic benefits to the citizens of Manitoba.

Introduction

Manitoba Natural Resources is responsible for the protection, conservation, management and development of Manitoba's forests, fisheries, wildlife, water, parks and Crown land. Through the management of these resources, the department makes a significant contribution to economic development, creates jobs, provides recreational opportunities and ensures that the basic needs of subsistence users are met. It also provides protection from floods, wildfires and other adverse effects of natural resources.

The department includes six branches with clearly defined resource management responsibilities. They are Fisheries, Forestry, Lands, Parks, Water Resources and Wildlife branches. Operational and support services are provided by Regional Services, Engineering and Construction, Surveys and Mapping, Administrative Services, and Communications, Economics and Planning branches. The Conservation Districts Authority encourages the establishment of conservation districts and coordinates their activities across the province.

The following report highlights the activities and accomplishments of Manitoba Natural Resources for the fiscal year 1987-88.

Administrative Services

This division provides administrative and professional support to the department, ensuring that administrative policies, procedures and directives are followed.

Financial Services

The Financial Services Branch is responsible for the co-ordination and preparation of the departmental expenditure and revenue estimates, supplementary information for legislative review, public accounts, variance analysis and quarterly cash flows; control and processing of departmental accounts payable, revenues and receivables; and control of the distribution and sale of wildlife hunting and fishing licences through 700 private vendors and departmental offices.

Human Resources

The responsibilities of the Human Resources Branch include recruitment and selection, position classification reviews, payroll and benefits administration, labour relations, staff training and development, occupational health and safety, affirmative action, and employee relations/counselling.

Increased focus on a number of human resource areas resulted in the reassignment of staff from within the department to carry out expanded responsibilities in training and development, safety, affirmative action and personnel services.

The Natural Resources Personnel System provides a computerized on-line access for file queries relating to employee salary, seniority and personnel information. The system has been used on a trial basis to produce alphabetical employee lists by branch/region detailing job classification, salary coding, employee type, status, group and dependent insurance, taxation information, and a variety of adhoc reports. It was scheduled to become operational April 1, 1988

The Human Resources Branch assumed responsibility from the Civil Service Commission for monitoring and allocating Workers Compensation charges to the applicable branch or region. Workers Compensation charges assessed to the department in 1987-88 were $236,928.55.

During the year one third of the department's staff participated an average of 3 days each in development and training activities. Highest participation was in microcomputer operation courses followed closely by Essentials of Management. Other workshops were Problem Solving and Decision Making, Stress Management, Assertiveness Training, Cardiopulmonary Resuscitation and a variety of others for a total of 122 workshops.

Persons Employed by Manitoba Natural Resources

(as of March 31, 1988)

		No. of people
Administration & Finance • Executive • Communications, Economics and Planning • Financial Services • Human Resources • Computer Services • Administrative Services • Audit Services	Permanent	106
Regional Services	Permanent Term	251 24
Engineering and Construction	Permanent	171
Water Resources	Permanent	94
Parks	Permanent Term	61 4
Lands	Permanent	44
Forestry	Permanent Term	75 15
Fisheries	Permanent Term	61 2
Wildlife	Permanent Term	63 1
Surveys and Mapping	Permanent	70
Conservation District Authority	Permanent	8
	Sub-Total:	**1,050**
Seasonal and Departmental Staff		1,041
	TOTAL:	**2,091**

Several long term programs such as the Hearing Conservation Program were continued and planning for new programs such as the Safety Training Observation Program and the policy, procedures and guidelines manual was initiated. Increasing concern over workplace safety and employee well-being in the department resulted in an additional safety officer being assigned to the section to assist the coordinator to deliver the required services.

The department's Affirmative Action Plan was approved by the central affirmative action committee and implementation commenced. A full-time position was established to assist with ongoing program development as well as monitoring evaluation and

training needs. Several affirmative action awareness/information sessions were held for managers and supervisors.

Other activities included the development of a "new employee" orientation program to be implemented in May, 1988. The Human Resources Branch also assumed responsibility for the continuation of the department's newsletter, Resource Focus.

During 1987 — 88, Human Resources processed 27 formal competitions, 14 waivers of competition, 83 entry level permanent and term appointments/recalls, 53 lateral transfers, 92 classification reviews, 43 S.T.E.P. student appointments, 1476 departmental employee appointments/recalls, 2965 firefighter appointments/recalls and 324 tree planter appointments/recalls.

Computer Services Section

The Computer Services Section provided support to the department in the analysis, design and implementation of information processing systems. The section performed feasibility studies at the request of client groups and provided them with an assessment of the existing situation and recommendations for improvement. The section also coordinated the preparation of the department's annual Information Technology Systems Plan and offered an equipment procurement service.

The section reviewed the department's office automation strategy and made recommendations to begin to replace first generation word processing with more flexible microcomputer workstations with appropriate printing and communications capability. The new strategy emphasizes electronic information transfer and interconnecting resources through networks. The section assisted the Wildlife Branch in establishing a network of microcomputers as a first step in implementing this new strategy.

Major system enhancements to the computerized Wildlife Big Game Draws were implemented in order to accommodate new regulations and guidelines. Major system enhancements to computer systems in the Fish and Wildlife Licensing and Revenue Accounting sections were also made. Microcomputer support was improved by establishing trouble shooting and design assistance in the resource branch areas. The section provided critical programming support to the Forest Fire Program for the majority of the 1987 Fire season due to staff turnover in that section. A major revision of the Parks Visitor Statistics system was completed to accommodate a restructured rate schedule.

The first phase of the Payroll/Personnel System designed to interact with existing extra-departmental computer systems to provide the department with information management and benefits processing not previously available, was implemented. This system provides for on-line enquiry, attendance processing and streamlined payroll processing. Future enhancements were planned to improve support to the human resource management function.

Internal Audit

Internal Audit continued to review, appraise and report on financial, compliance and management practices.

A wide variety of audits and special reviews of varying complexity and extent were undertaken. In administrative Services the annual review of the Delegations of Authority as required by legislation was undertaken as was a review of the progress made in implementing the province's affirmative action program. A review of the quality of service received from other government departments was completed for the Communications Branch and Regional Services was assisted in establishing up-to-date legislation to better direct and administer the Manitoba Hunter and Firearm Safety Training Program. The Forestry Branch was selected as the initial area to be the subject of a broad-based comprehensive audit. A detailed audit of the financial aspects of the Canada-Manitoba Forest Renewal Agreement was also undertaken For the Parks Branch and the Engineering and Construction Branch, annual audit tasks of campground cash control audits and revolving inventory audits were completed.

Operational Support Services

Operational Support Services provided services in the area of communications, office and storage accommodations, employee housing, office equipment, vehicles, inventories, insurance, clothing (both environmental and uniform issues), warehousing and library services.

A major focus for the section was the Records Management Program. It involved the documentation and scheduling of existing and inactive files. This Branch proceeded with the development of departmental policies, procedures and guidelines for the orderly implementation of the Freedom Of Information Act.

The library continued to provide support services to the department, by acquiring and organizing relevant publications. Staff responded to many requests for information, supplementing the library resource by increased use of on-line database systems.

Communications, Economics and Planning

This branch co-ordinates communications programs for the department and delivers public information and educational programs; provides strategic planning input and economic, analytical and evaluation support services on an assignment basis; and co-ordinates, prepares and assists in activities involving resource allocation, policy, environment, outdoor recreation — tourism and planning.

The branch also administers the province's ecological reserves and ecologically significant areas programs, and the southern Crown land planning program.

Media and Community Relations

Extensive publicity for departmental programs and policies continued to be achieved through both the broadcast and print media. Ongoing projects include regularly scheduled radio and TV appearances by section staff to discuss activities in provincial parks along with other departmental activities.

During the appropriate seasons, weekly reports on ski trail conditions and campground occupancy were distributed to radio stations throughout the province. For the first time, CBC radio used this material on the air Friday afternoons as a regularly scheduled program feature.

The weekly Resources News package continued to be distributed in both broadcast and print formats and was extensively used by media throughout the province. Several stories that originated with Resources News received national and international coverage. Several special series were developed including a nine week series highlighting attractions found in provincial parks. It was produced in co-operation with MTN television and each installment was used on both their supper hour and late night news programs.

In May, the Wallace Lake forest fire, with its significant impact on a built up area, put the Emergency Communication Plan developed several years ago to its most severe test to date. Media and departmental field staff all expressed satisfaction with the implementation of the plan.

Distribution of departmentally produced video tapes was expanded to include four private video rental stores in Winnipeg. This arrangement, at very little cost, increased the number of people exposed to the material while providing the video outlets with a product that attracted a specific clientele to their stores.

Legislation

The Communications, Economics, and Planning Branch carried out a significant role in two major areas of legislative change during the year.

Representing the department on the Technical Advisory Committee reviewing the new Environment Act, the Branch achieved major modifications to the Act. Those changes will enable the department through ministerial agreement to carry out a more rigorous review and assessment of departmental projects, or projects where the department acts on behalf of the proponent. At the same time, the agreements will ensure that the department maintains some control over the assessment process.

The branch also responded to an increasing public awareness and sensitivity for the protection of endangered species. A draft Endangered Species Act was prepared which when enacted will provide a high degree of protection for plants and animals in Manitoba which are in danger of extinction. Amendments to the Ecological Reserves Act and Regulations will enable the protection of ecologically significant areas to be more effectively carried out.

Outdoor Recreation

The Branch provided a departmental focus on several areas of outdoor recreational opportunity.

Representing the department on the Licensing Advisory Committee, the branch ensured that resource allocation to lodges and outfitters supported the industry, while maintaining the viability of the wildlife and fishing resource. Attention was directed to the need for a more integrated and firmer licensing process for the department, and progress was achieved on the concept of a resource use licence.

The policy for the sale, lease, and permit of Crown Land for recreational purposes received Cabinet Endorsement in the spring of 1987. Following the direction of the Provincial Land Use Committee of Cabinet, the branch continued to develop the policy guidelines for this initiative. It is expected that substantial private investment will be encouraged through this more open approach to the private development of Crown land.

The second gifting agreement between Canadian Pacific Railways and Manitoba was reached, which will continue the transfer of abandoned railroad right-of-ways to the province. This branch represented the department on the Abandoned Railline Committee and ensured that the department's position on the use of these lines was reflected in the committee decisions.

Northern Land Management

The branch monitored the progress of the Flood Agreement and Land Entitlement settlements. The northern non-treaty communities continued to request more input into resource use in the areas surrounding the communities, particularly those communities affected by Flood Agreement claims. Assistance was provided to Manitoba Northern Affairs in an effort to resolve these issues.

Interdisciplinary land use plans are provided as and when required in northern Manitoba and a plan is currently underway for the L.G.D. of Mystery Lake, under the guidance of the Crown Land Classification Committee.

Southern Crown Land Management

Crown land plans in southern Manitoba are the responsibility of the Crown Land Classification Committee. The branch is the focus for this Committee providing management, planning and technical support. During the year, the committee received approval for 2 provincial Crown land plans from the Provincial Land Use Committee of Cabinet. There are now 14 approved provincial Crown land plans, 4 draft plans under review, 24 areas under study and a number of plan amendments under consideration.

The Crown Land Classification Committee processed, reviewed and recommended the establishment of, or additions to, 13 Wildlife Management Areas, one ecological reserve, and four provincial forests.

The committee considered 51 agricultural Crown land sales, recommending approval of 23 and disapproval of 28. Additionally, 29 appeals were considered and actioned. A number of non-agricultural sales and Crown land exchanges were also processed.

Yearly update of the "Interdepartmental Operational Crown Land Plans" report was completed along with compilation of the "Code Change Schedule".

Municipal Planning and Resource Management

Provincial land use policies and department objectives provided the foundation for positions advanced by the department in the preparation of planning district and municipal planning documents.

One "Planning Report on Natural Resources" was prepared at the request of local municipal officials along with one manuscript. Three new reports were under preparation. In addition, the branch coordinated the assessment and evaluation of a number of draft municipal planning documents, proposed plan amendments and directed the department's review of proposed subdivisions.

During the year the branch processed 48 Crown land sale requests through the clearance procedure under the Agricultural Crown Land Sale Program. One hundred and twenty-four parcels of Crown land were also processed under the LGD/Crown Land Exchange Program.

The "Crown Lands Handbook for Agro-Manitoba" which contains maps showing the location of Crown lands in southern Manitoba was updated to December 31, 1987.

The Branch represented the province at the federal government's annual meeting on land use and coordinated the preparation of the province's "Land Use Report to the Canada Committee on Land Use".

Summary of Activities: Crown Land Classification Committee

Area		Status	Comments
1.	RM Woodlands	Plan Approved	
2.	RM Silver Creek	Plan Approved	
3.	Lake of the Prairies, RM Shellmouth, Roblin	Draft Plan Under Review	Planning near final stages
4.	RM Swan River	Draft Plan Under Review	No change in status since '84
5.	Selkirk and Area District	Draft Plan Under Review	Field work almost completed
6.	LGD Armstrong	Draft Plan Under Review	Draft Plan for Twp. 18 and 19, Rge. 1E only

Area		Status	Comments
7.	Del-Win and Morton-Boissevain Planning District	Planning Continued	Request for Plan from Heritage Marsh Advisory Committee
8.	RM Sifton	Planning Continued	Request for Plan from Heritage Marsh Advisory Committee
9.	LGD Consol	Planning Continued	
10.	LGD Alonsa	Planning Continued	Request for plan from Conservation District; Field Work completed for southern half
11.	RMs Ochre River, Ste. Rose	Planning Continued	Request for plan from Turtle River Conservation district and Heritage Marsh Advisory Committee
12.	Waterhen Community	Planning Continued	
13.	Saint Lakes Area	Planning Continued	
14.	RM Tache	Planning Continued	Field Work nearing completion
15.	RM Ste. Anne	Planning Continued	Field Work nearing completion
16.	RM La Broquerie	Planning Continued	Field Work nearing completion
17.	Winnipeg River Planning District	Planning Continued	
18.	Mars Sand Hill	Project Continued	Background Study in preparation
19.	Northern Interlake	Planning Deferred	
20.	Russell-Binscarth Planning District	Planning Initiated	
21.	RM Lawrence	Planning Initiated	
22.	RM Eriksdale	Planning Initiated	RM has joined Western Interlake Planning District
23.	RM Rossburn	Planning Initiated	
24.	Virden-Wallace Planning District	Planning Initiated	
25.	Brandon and Area Planning District	Planning Initiated	
26.	RMs Westbourne and Lakeview	Planning Initiated	Request for plan from Heritage Marsh Advisory Committee
27.	Killarney and Area, Roblin and Louise Planning Districts	Planning Initiated	
28.	RM Hanover	Planning Initiated	
29.	RM Springfield	Planning Initiated	
30.	RM Whitemouth	Planning Initiated	
31.	LGD Pinawa	Planning Initiated	
32.	Thompson Planning	Planning Initiated	
33.	Western Interlake Planning District	Plan Review Continued	5-year mandatory review
34.	Cypress Planning	Plan Review Continued	5-year mandatory review

Natural Resources Planning; 1987-88

Planning Authority		Area	Status
1.	Souris-Glenwood	RM Glenwood, Town of Souris	Report Completed
2.	St.-Pierre-Jolys Council	Village of St.-Pierre-Jolys	Manuscript Completed
3.	Western Interlake Planning District (Council RM Eriksdale)	RM Eriksdale	Report under preparation
4.	Gladstone Council	Town of Gladstone	Report under preparation
5.	St. Francois Xavier Council	RM of St. Francois Xavier	Report under preparation

Economics and Program Review

The Economics and Program Review Section contributed to department decision making and assisted departmental management in using funds efficiently and effectively by providing analytical, economic and evaluation support services. Analytical and economic studies and other special assignments carried out in 1987-88 included:

- development of a proposed new billing formula for recovering fire suppression costs on Indian reserves
- provision of economic analytical input into several proposed projects being considered by the department including the Rat River project
- development of recommendations for implementing a pro-active economic development strategy for the department
- co-ordination of Manitoba's representation in the softwood lumber countervail issue
- representation on the Northern Development Agreement Program Advisory Committee
- co-ordination of the department's submission of projects for funding consideration under the Western Diversification Initiative
- evaluation of the department's "Resource Focus" newsletter
- co-ordination of planning for the 1988 Park Visitor Survey
- analysis of the financial savings that would be possible from the consolidation of the department's Winnipeg staff in one office building
- development of policy options relating to the recovery of costs of suppressing fires originating on private lands in rural municipalities and local government districts
- review of the potential savings possible from pooling of equipment inventories
- preparation of a report analyzing the marketing opportunities for northern Manitoba wild rice producers
- analysis of the administrative costs and offsetting revenue expected from proposed agreements for transfer of abandoned railroad right-of-way to the department
- analysis of the financial impact of resource management policy changes on commercial operators
- provision of project management for economic research projects carried out under the Canada-Manitoba Forest Renewal Agreement, including preparation of *Manitoba's Forest Industry, 1985* which presents economic statistics on the industry obtained from a 1985 survey; silvicultural productivity studies; and logging productivity studies
- chairmanship of the Opportunity Identification Committee under the Canada-Manitoba Forest Renewal Agreement, which has been given responsibility for identifying economic opportunities for Manitoba's wood products industry
- provision of economic analytical input to the Fire Prevention Task Force
- analysis of the impact of the Free Trade Agreement on the department and co-ordination of departmental input to the Manitoba Trade negotiator's office

Heritage Resource Conservation

The branch furthered its efforts of preserving unique, rare and representative examples of Manitoba's ecosystems through the ecologically significant areas program. The voluntary protection aspect of the program designed to recognize privately owned, voluntarily protected lands and acknowledge special areas of Crown land receiving protection in selected provincial parks, wildlife management areas, and provincial forests was implemented. Eleven areas containing 9574 hectares of land were enrolled. Seven areas are owned or administered by individuals, local government or research organizations; five are special areas of Crown land. Participants in the program received plaques and certificates recognizing their efforts and signs to post on the areas to help protect them.

Two ecological reserves containing 2053 hectares of land were established. The Long Point Ecological Reserve, at the base of Long Point in Lake Winnipeg protects beach ridges and bogs containing mature stands of eastern white cedar at the northwestern fringe of its normal range. The Lewis Bog Ecological Reserve, near Elma, protects an excellent example of a fen which contains two species of rare orchids. This increases the number of ecological reserves to nine encompassing a total of about 17,650 hectares.

Ecologically significant areas include bogs, bog lakes, fens, deciduous forests, coniferous forests, spruce parklands, prairies and river valley segments. Each area is typical of a Manitoba ecosystem but each has its unique characteristics such as rare plants, animals and land forms.

Direct support for the Canadian Council on Ecological Areas continued with Manitoba's representative serving as chairperson. Duties of the chairperson included representing the Council at national and international events.

Conservation Districts Authority

The Conservation Districts Authority (CDA) is responsible for encouraging the establishment of conservation districts in Manitoba. It also provides assistance for program development and implementation and coordinates or provides planning services to existing districts.

Excellent progress has been made in the development of the districts' resource management plans. Through the selective use of external consultants and an emphasis on local decision-making and priority setting, the CDA has been able to initiate the planning process in all five of Manitoba's conservation districts. Two of the district plans are now complete and will be submitted for Ministerial approval early in the new fiscal year.

The CDA assisted the Turtle River Watershed Conservation District with the development of the terms of reference and the selection of a consultant for the district's crossing management strategy. The study was completed and presented to the board early in the year. The plan is now guiding the board in its long-term crossing strategy.

A $12,000 grant was provided to the Natural Resources Institute for a student to prepare a practicum involving an assessment of areas in the Riding Mountain escarpment that could serve as sites for erosion control demonstration projects.

Two projects directed at the acquisition of external funding to support conservation district programs were pursued. A proposal to re-examine the Big Grass Marsh water management project was initiated. The study will attempt to re-define the benefits of Big Grass Marsh and seek commitments from external agencies to participate in the project. In cooperation with the Turtle Mountain Conservation District, the CDA developed a proposal for a wildlife habitat retention and development program. The proposal is intended to secure cooperation and financial support from a variety of wildlife interests.

In the latter part of the fiscal year, an initiative to integrate long-term land and water management strategies was undertaken. As part of an inter-agency committee, the CDA developed proposals for a three-tiered planning model for water and soil conservation plans. The committee also proposed a strategy to integrate planning and conservation districts into the new planning system.

The direct granting system adopted by the CDA two years ago to provide for more district autonomy and responsibility in financial and administrative matters has received excellent support from the districts. The remaining two districts will be placed in the program beginning with the new fiscal year.

Proposed Districts

The year began with a great deal of activity as municipalities in several areas of the province expressed an interest in the conservation district program. The CDA, assisted by officials from Manitoba Agriculture, Municipal Affairs and the Water Resources Branch of Manitoba Natural Resources attended numerous council meetings and participated in workshops and meetings to develop and review proposals. While the program has been generally well received, some areas or municipalities have expressed a desire not to continue the process. Concerns about becoming part of a district usually relate to the current tax load being borne by ratepayers or to the availability of future provincial support to the program. The recent review of water and soil management programs in the province has also cast uncertainty on the future of conservation district programs. In addition, current funding available through the Agri-food program may tend to discourage municipalities from forming districts.

Originally eight municipalities were being considered as part of the Pembina Valley Conservation District. The number dropped to four in the spring of 1987 and later to three. The three remaining municipalities, Lorne, Louise and Argyle, requested a detailed proposal for consideration by each individual council. To assist the municipalities in arriving at a decision, a tour of the Turtle Mountain Conservation District was arranged to familiarize councilors with the achievements of a working district. A final draft of a proposed district was tentatively accepted by the councils of the included municipalities. Before voting on the matter, a series of six public meetings were arranged in order to determine the extent of public support for the concept. All were well attended and public support was evident except for the last meetings in the RM of Argyle where attendance was rather low. Resolutions either for or against the formation of a district were expected early in the new year.

One meeting was held in the summer of 1987 with municipalities in the Washow Bay area of the Interlake. Local interests are currently focusing on the implementation of the Agri-Food agreement. Once the Agri-Food Agreement ! approaches completion, this situation may be clarified.

A proposal for a conservation district was developed for the municipalities of the Tobacco Creek/Shannon Creek watershed. The district was to be formed mainly on watershed boundaries and would focus on drainage and water management in the lower reaches, while soil conservation and habitat retention would be the main thrust in the upper reaches of the watershed. Early in 1988, the RM of Morris indicated its unwillingness to

join. Further action by the RMs of Roland and Thompson are to await the outcome of the proposed Pembina Valley Conservation District.

Municipalities adjacent to the Overhill Drain area south of Portage la Prairie have been unable to reach an agreement to form a district. No further action directed at the formation of a district was contemplated.

The Conservation Districts Authority met with the municipalities of Siglunes, Eriksdale and the LGD of Grahamdale early in 1988. The major concern in the area was water management and drainage. As a result of the interest expressed at the meeting, the CDA was asked to develop a proposal for a district. The proposal was to be circulated early in the new fiscal year.

Up to twelve municipal corporations have been involved in discussions about a possible conservation district in the area surrounding the town of Shoal Lake. Soil conservation and the development and protection of other resources in the area were the main focus of the local group. Following a series of meetings, the Conservation Districts Authority was requested in February, 1988 to develop " a proposal for a district based on the Oak River, Minnewasta Creek and Arrow River watersheds. The proposal was reviewed with staff from other departments and will be available in April, 1988.

Officials from the Saskatchewan Water Corporation and the CDA met on two occasions to examine in further detail the implications of forming a district that would include municipalities from both provinces. A number of options were considered, however, further action was held in abeyance pending the outcome of a review of water management planning now underway.

The RM of La Broquerie was seeking to obtain the cooperation of surrounding municipalities to address water management (drainage) concerns. Although the peripheral municipalities were unwilling to participate in a district, the RM of La Broquerie requested a proposal based on RM boundaries only. The overhead cost of administering a district make it unlikely that the RM of La Broquerie would proceed to form a district based solely on its own boundaries.

Other activities included:

- Officials of the Conservation Districts Authority met with representatives from the councils of the RM of Whitemouth and the LGD of Reynolds in March of 1988. Water management and water quality as well as overall resource management were the main topics of the discussion.
- A meeting with the council of the RM of Brokenhead and CDA staff took place early in the fiscal year. Although interest had been expressed ten years ago, it faded because of a lack of a suitable program. Since water management is the major concern, a district based on watershed boundaries would appear desirable. The RM of Brokenhead is to contact local councils to determine the degree of interest and support before proceeding further.
- Flooding problems along the Fisher River led to a meeting between the LGD of Fisher council and staff from the CDA and Manitoba Agriculture in November, 1987. The LGD was seeking the cooperation of the Indian bands from the Peguis and Fisher Reserves in proposing a solution.
- A request for information about conservation districts was received late in the year from a municipality in the West Dauphin Lake Watershed.
- A request for an informational meeting was received in March, 1988 from the South Interlake Land Management Association. The meeting, scheduled for early in the new fiscal year was to be attended by several municipalities in the South Interlake area of Manitoba.

District Reports

Whitemud Watershed Conservation District

The Board of the Whitemud Watershed initiated its resource management plan in the fall of 1987. The terms of reference were developed and the plan was expected to be completed by June of 1989.

In other initiatives, a proposal which would include external funding and a reevaluation of the Big Grass Marsh project, was under consideration by the Board. And, in a cooperative venture with the RM of North Norfolk, the District began what is hoped will be a series of water storage projects. A quarter section of land will be dyked to store flood water for gradual release.

Work also continued on the Big Grass River double dyking system which was scheduled for completion in 1992. Other reconstruction activities included the work on the Youville, Beaudin, and Perch Creek systems.

This year, as part of its public education program, the District developed a conservation education program for grades five and six. The program was adapted from one received from the Missouri Department of Conservation.

The District evaluated the purchase of a sub-soiler under its Agri-Food program. The sub-soiler would be used to provide sub-surface drainage in saline areas.

The balance of the district program included ongoing soil conservation, drain maintenance, and various resource conservation programs.

Turtle River Watershed Conservation District

Work on the Board's resource management plan which began in 1986 is now nearing completion. The plan was adopted by the Board and was awaiting Ministerial approval. The board also began work on its water management plan which was scheduled for completion within twelve months.

The District continued its water management program and approximately 75 miles of drain were maintained. The board also completed restoration work made necessary by the 1986 spring flood. A grant for 90% of approved flood repair costs was received from the Flood Disaster Relief Board.

Forage seed assistance continued to be the main soil conservation program. A grassed waterways program was initiated and two projects were completed in 1987. The Board continued its critical area acquisition program with the purchase of a second piece of property. The land will serve as a water retention basin and provide wildlife benefits. This program was developed as an alternative to providing costly drainage services to marginal agricultural lands. The Agri-Food program being delivered in cooperation with Prairie Farm Rehabilitation Administration and Manitoba Agriculture is in its third year. Over $42,000 was spent on a variety of land treatment and demonstration programs.

The critical crossing replacement program continued with 13 crossings being replaced. Two of these were experimental. The district is using old railway flat cars in an attempt to reduce costs. The crossings will be evaluated over the next few years to assess their suitability and performance. In addition, over 50 other crossings were repaired.

Certain assets were acquired this year in support of labour crew activities. A storage shed, tools, truck and trailer were purchased at a total cost of $42,000. Due to the increase in the administrative workload, an additional & staff member was hired in 1987.

Alonsa Conservation District

The major programs in the Alonsa Conservation District continued to focus on forage seed assistance and agricultural land drainage.

Construction continued on the Portia Project by Ducks Unlimited. Once completed, the project would improve waterfowl habitat and provide flood protection over a 5000 acre area.

In another joint venture with Ducks Unlimited, the district participated in a rotational grazing project which was expected to continue over the course of the next few years.

To improve and extend their educational program, the Board purchased a complete set of photographic equipment. Work also continued on the District's resource management plan, scheduled for completion by the fall of 1988.

Turtle Mountain Conservation District

The Board approved their long range resource management plan. To become official, the plan must receive Ministerial approval. Direction established under the plan was already evident. The runway stabilization program which began in 1981 will now give way to programs of water storage and other uses of ' water. Soil conservation, public education and wildlife habitat protection and development are other major thrusts of the long range plan.

In a continuing program, the board began development of the Metigoshe Natural Area. In addition to clearing several trails for use in nature interpretation, the district developed a picnic site complete with parking lot, shelter, tables and barbecues.

The District began a new project this year in cooperation with the International Peace Garden. Under this program, a .57 ha site was being developed to represent "The Prairie: Past and Present". Late in the year, the Board also completed arrangements for the purchase of another piece of land. The property, located adjacent to the Deloraine Reservoir, contains remnants of the Boundary Commission Trail and will be developed as an historic site.

In February, the Board began deliberations on the components of a habitat retention and development program. This program, which will extend over many years, was expected to be carried out in cooperation with a variety of wildlife agencies. A critical component of the program being considered is the provision of financial incentives to landowners to assist them in establishing or maintaining areas critical to wildlife survival.

Other district programs included runway stabilization, forage seed assistance, shelterbelts, and the construction of one small scale water storage project. In cooperation with Ducks Unlimited, the district also completed a small dam targeted for wildlife uses.

Cooks Creek Conservation District

The Cooks Creek Conservation District Board initiated the preparation of a resource management plan in the fall of 1987 with completion scheduled for the spring of 1989.

Another two kilometers of the Cooks Creek Diversion were completed this year. At the current rate of progress, the project would be completed in 1989. The

board also completed construction of approximately three kilometers of the Plympton Road drain.

Work on the tributary studies of the Cooks Creek Value-Added project continued. The study for Subwatershed One is now complete. Work on Subwatersheds Two and Three will commence in 1988. Target date for the completion of all tributary drainage systems studies is 1991.

The balance of the Board's works program consisted mainly of drain maintenance and crossing repair/replacement.

Conservation Districts Expenditures 1987-88

District	Provincial Grant	District Share	Total
Whitemud	$ 768,552	$249,792	$1,018,344
Turtle River	479,447	225,875	705,322
Alonsa	157,219	64,515	221,734
Turtle Mountain	213,924	88,630	302,554
Cooks Creek	194,347	77,919	272,266
	$1,813,489	$706,731	$2,520,220

NOTE: Provincial grant figures are adjusted to include receivables from the province at year end.

Amounts shown for district share may include grants from other agencies and individual contributions, etc.

Dollars expended on district Agri-Food and Value-Added programs are not included in this summary.

The Conservation Districts Authority prepares a more detailed Annual Report that is tabled separately in the Legislature.

Engineering and Construction

This branch provides engineering design, surveys, investigations, project management services and related support services to other branches within the department, as well as to municipalities, conservation districts and other government agencies; operates all flood control works during flood emergencies, coordinates all flood fighting activities and makes assessments of claims in respect to flood fighting costs and restoration works.

1987-88 Program Summary

Client	Expenditures (000's)
Water Resources	$6,600.9
Parks	787.7
Conservation Districts	1,219.2
Forestry	927.8
Fisheries	12.8
Wildlife	60.5
Lands	12.9
Total:	**$9,621.8**

Flood Damage Assessment & Repair Expenditures 1987/88

	(000's)	
	1987-88	**1986-87**
Flood Damage Claims	81.0	356.7
Provincial Waterway Damage Completed	432.5	101.2
Total	**$513.5**	**$457.9**

Technical Services 1987-88 Summary

The Technical Services Division provided engineering design services, consulting engineering services, construction inspection and soils laboratory services. The clients included other branches within Manitoba Natural Resources, as well as Conservation Districts, Municipalities and other government departments or agencies. During the year the division completed designs for 90 projects and finished work on 141 investigation/design reports.

Plans for the Ste. Rose dyking system were completed while work on the internal drainage system within Ste. Rose continued. The Gimli Diversion channel design was completed and works continued on the Pasquia, Washow Bay and Cooks Creek drainage projects.

During the year, the division performed 102 dam inspections and reports and 63 bridge inspections resulting in 23 bridge closures. Field investigations and laboratory services were provided to Ducks Unlimited for the Rat River Marsh project.

Design Projects	
Water Resources	44
Conservation Districts	9
Municipalities	19
Parks	12
Forestry	3
Fisheries	2
Lands	1
Total	90

Investigation or Design Reports	
Water Resources	58
Conservation Districts	13
Municipalities	39
Parks	22
Forestry	5
Fisheries	2
Regional Services	1
Disaster Assistance Board	1
Total	141

Geotechnical Laboratory Tests	
	No. of Tests
Natural Resources	3499
Highways	4263
Manitoba Water Services Board	132
Wildlife (Ducks Unlimited)	812
Total	8706

Project Management Services

This division provided a variety of engineering services to other branches of the department and to other government agencies. Typical services included project management, construction and maintenance, field surveys and investigations, as well as general engineering consulting.

The division's maintenance section completed a number of construction and maintenance items in support of ongoing facility development and operations for Parks, Forestry and Water Resources Branches.

A specific project management system was initiated for selected park projects at Clearwater Lake Provincial

Park, Paint Lake Provincial Recreation Park, Wellman Lake in Duck Mountain Provincial Park and Whiteshell Provincial Park. Development of computer assisted techniques was initiated as part of these projects.

Geotechnical Laboratory Tests

	No. of Tests
Natural Resources	3,499
Highways	4,263
Manitoba Water Services Board	132
Wildlife (Ducks Unlimited)	812
Total	8,706

Surveys and Investigations

Client	Requests
Water Resources	431
Parks	24
Forestry	14
Fisheries	3
Wildlife	3
Lands	5
Regional Services	7
Government Services	4
Northern Affairs	4
Total	505

Maintenance Management

Client	Emergency	Repair	Consult.	Total
Parks	28	55	39	122
Forestry	9	13	17	39
Water Resources	2	9	11	22
Total	39	77	67	183

Interlake Region

Work undertaken on behalf of the Water Resources Branch consisted of the operation, inspection and maintenance of water resources facilities including approximately 1600 km of provincial waterways, 225 bridges and 10 provincial dams.

Activities on the Assiniboine River Flood Control System included operation of the Portage Diversion and general repairs and maintenance to the control structures, ice guide boom, diversion channel and dykes.

The Capital program included installation of four major culvert crossings under the Bridge Replacement Program. Culverts were purchased for three additional crossings for installation in 1988. Funding was provided to Manitoba Highways and Transportation for design of a concrete box crossing for P.T.H. #6 in the Fishline Drain for installation in 1988.

Construction surveys were completed and design work was initiated for phases 1 and 2 of the proposed Washow Bay Project. Activities included dragline cleanouts, brushing, as well as purchase of culverts and pumps.

Surveys and design were completed for the proposed Gimli flood protection project.

Flood damage repairs to provincial waterway facilities related to Spring flooding in 1986 and 1987 were completed.

Engineering services were provided to municipalities and Local Government Districts within the region. Approximately 34 requests for service were responded to resulting in surveys, design and construction staking.

Work for the Forestry Branch included approximately one kilometre of new construction on the Kinwow Bay Road, 5 kilometres of gravel and provision of a security gate to prevent unauthorized traffic on the road.

Work undertaken on behalf of the Parks Branch included completion of the Hecla Viewing Tower at Gull Harbour. This included electrical service, painting, and installation of safety support systems for the viewing platforms. Approximately 3/4 kilometre of a programmed 4 kilometres of reconstruction of P.R. 233 was completed as part of a construction contract administered by Manitoba Highways and Transportation. A project designed to prevent serious erosion of the beach and road at St. Ambroise Beach was completed. The on-going program of Grindstone Road maintenance and drainage improvement at Blacks Point was continued.

Work for the Wildlife Branch consisted of the on-going maintenance of Oak Hammock Marsh. Work also included installation of 4 slide gate control structures and purchase of an additional 4 control structures. A storage building was constructed at the Natural Resources yard at Clandeboye.

On behalf of the Fisheries Branch, a series of 10 fish spawning riffles were constructed on Wavey Creek. A stop-log control structure was purchased for 1988 2 installation at Crossen Drain for walleye rearing in Reedy Lake.

Four bronze plaques were installed in the region for the Historic Resources Branch.

Although no claims for flood damage compensation were received from municipalities as a result of flooding in 1987, a total of six such claims from 1986 flooding were processed.

Southwestern Region

This region delivers services in an area involving approximately 37,000 sq. kilometres. Within this boundary exist 62 municipalities, 35 watersheds, 1,900 kilometres of constructed waterways, 1,100 bridges and culvert crossings, 25 provincial dams and two Conservation Districts.

The primary emphasis within this region was directed at the delivery of technical support, engineering services and construction supervision to the Whitemud and Turtle Mountain Conservation Districts. In addition to the normal maintenance of drains and crossings in these districts, large construction projects included Perch Creek, Westbourne and Youville Area Projects, Beaudin Area System, Big Grass River Floodway, and the Grassed Runway Program.

The commitment to the Water Resources Branch included the normal maintenance requirements for drains and crossings, as well as completion of surveys for the Plum Lakes Development Project and construction surveys for the Town of Souris Water Treatment plant dyke.

Numerous projects were undertaken for a number of branches of the department including Parks, Fisheries, Wildlife, Forestry and Water Resources.

Through the Municipal Services Program several kilometres of survey were completed for municipalities within the region. These surveys, in many cases, included design preparation and field staking.

Several special projects were undertaken during the year. The region completed studies for the Conservation District Authority involving the maintenance and reconstruction strategy for man-made drains in Whitemud and Alonsa Conservation Districts and an evaluation of crossings in the Whitemud Conservation District.

Western Region

Work undertaken on behalf of the Water Resources Branch consisted of the inspection, maintenance and operation of infrastructure in the Western Region consisting of approximately 675 kilometres of designated Provincial Waterways, 22 flood and erosion control dams including Lake of the Prairies (Shellmouth Dam) and over 150 bridges over Provincial Waterways. Major activities associated with the Water Resources Maintenance Program included approximately 3 kilometres of dyke reshaping on the Mink Creek, purchasing right-of-way and brushing on the East Townline Drain, installation of the Avonlea Drain steel sheet pile and rock gradient control structure and a cleanout of Glover Creek. Right-of-way for a 4 future maintenance program was purchased on the Spruce and Maple Creeks in the Dauphin area. Major deck repairs to the Ranch Creek Bridge and bank erosion remedial measures were undertaken on the Wilson River. Under the Bridge Replacement Program materials were purchased for the construction of the Mink River Bridge in 1988-89 fiscal year and a culvert crossing was installed to replace a bridge over the Avonlea Drain. Capital projects included reconstruction of approximately 4 km of the Jackfish Creek, preliminary engineering and right-of-way purchase for the Ste. Rose Flood Protection Project. Land acquisition continued on the Pasquia Polder III Project and 15 major accesses were constructed to the Carrot River/Salt Channel dyke in The Pas area. Final clean-up on the Hamlin Drain Reconstruction Project was completed. Preliminary engineering was undertaken for future reconstruction of the community pasture drain in the Dauphin area. Minor flood repairs were also completed on the Provincial Waterway infrastructure.

For the Parks Branch, work continued on the Manipogo Provincial Recreation Park sewage line replacement project including the installation of approximately 622 lineal meters of sewer line and refurbishing of 2 lift stations. Piles were purchased and driven at Asessippi Provincial Park for the first stage of a 70 stall capacity marina development. Preliminary engineering was conducted for new lagoon sites to serve the Wellman Lake area in the Duck Mountain Provincial Park and Clearwater Lake Provincial Park. Reports were prepared for Reed Lake breakwater repairs and Campers Cove campground expansion.

Work for the Lands Branch consisted of lot surveys and reconstruction of the access road to the Waterhen cottage subdivision. Lot surveys were also 5 undertaken for the proposed cottage development along the Red Deer River in the Mafeking area.

Work for the Forestry Branch consisted of design and construction of a culvert installation on the Hart Mountain Forestry access road and some drainage development at the Clearwater Nursery.

Work undertaken for Manitoba Northern Affairs consisted of preliminary engineering to replace 3 bridge structures on the Red Deer Lake access road.

Engineering services were provided to the Alonsa and Turtle River Watershed Conservation Districts. Work consisted of reconstruction of 3.5 kilometers of the Maquet Drain and a maintenance cleanout of the Tityk Drain for the Turtle River Watershed Conservation District. Also, a rock weir was constructed on the Wilson Creek and major culvert crossings were constructed on the Bearsitow Creek and Boundary Drain. A flood restoration cleanout was also required on the Corbell Drain. Cleanouts on the Johnson Lake Drain and Iris School Drain were undertaken for the Alonsa Conservation District in addition to normal weed and brush control.

Eastern Region

Various surveys were conducted for the Cooks Creek Conservation District, local government districts, municipalities and various branches of the department. Maintenance and construction work were undertaken on approximately 1147 km of Provincial Waterways and flood control works for the Water Resources Branch. The Red River Floodway was operated in the spring.

Eight major drain crossings were replaced and material ordered for one crossing.

Construction work was completed on the Pansy Drain and the Libau Drain. Land acquisition and culvert purchase was initiated on the D-20 Drain and the Dubas Drain. A contract for dyke construction on the east side of Emerson was completed.

Work continued on the Cooks Creek Diversion where two excavation contracts were completed.

Two projects were undertaken for the Fisheries Branch including the creation of a water storage area for rearing walleye fry in the Red River Floodway. A contract was advertised for the Dominion City Fishladder, but was later cancelled.

A number of projects were completed for Parks Branch in Whiteshell Provincial Park. These included water pumphouses at Otter Falls, Dorothy Lake and Betula Lake, a shower building at Big Whiteshell campground, and various sewer and water improvements at Falcon Lake and throughout the park.

Seventeen camping sites at Caddy Lake campground were electrified with 7 underground service.

A gravel crushing contract was completed for Regional Services Branch and gravel applied to various subdivision roads within Whiteshell Provincial Park.

Various projects were completed for the Forestry Branch at the Pineland Nursery including a septic field, a dry storage building and a bareroot storage building. Work was also initiated on a dust control system for the seed line building.

Engineering services were provided to the Cooks Creek Conservation District and its annual maintenance program was completed.

South Central Region

Work carried out on behalf of the Water Resources Branch included maintenance and operation of approximately 1150 km of designated Provincial Waterways, 19 dams, 325 bridges, 40 gradient control structures, five flood protection systems for Red River Valley towns, the Assiniboine-La Salle River Enhancement Project and the West Dyke for the Red River Floodway.

The Valley Town Dyking Program designed to provide protection to the 1% flood level was completed. Work during 1987 included purchase and installation of equipment designed to allow alternate power sources for the permanent pumping stations, purchase of portable Cristafoli pumps and completion of the storage and operations building at Morris.

Also completed in 1987 was the General Development Agreement program, with the removal of a C.P.R. by-pass which was required during construction of a new bridge the previous year.

Three major culvert installations were completed under the Bridge Replacement Program, as well as final cleanup and rip-rap on one installed in 1986. Culverts were purchased for three additional sites for installation in 1988.

Engineering services involving surveys, design and construction staking were provided to a number of municipalities within the region. Approximately 85 requests for services were responded to during 1987-88.

Flooding during the 1987 Spring run-off resulted in considerable damage to a number of bridges, structures, drains and dykes within the region. Repairs were completed within the fiscal year.

Other work during 1987-88 included upgrading the water supply system at Stephenfield Provinical Recreation Park, installation of a Bronze Plaque for the Historic Resources Branch and processing of four Municipal flood damage assistance claims for the Manitoba Disaster Assistance Board.

Also during 1987-88, surveys were completed for 19 building permits issued in the Red River Valley Designated Flood Area under the Water Resources Administration Act. Subsequent compliance surveys were completed at 11 sites.

Fisheries

This branch develops and implements fisheries management programs to provide the greatest benefit to Manitobans by maintaining or enhancing fish populations in the province; monitoring the effects of harvest and habitat alterations on fish populations; operating the provincial fish hatcheries to increase and/or sustain fish resources; and allocating the fishery resource to ensure the best return to Manitobans. The branch also administers the Northern Fishermen's Freight Assistance Program for commercial fishermen.

Commercial Fishing

The Northern Fishermen's Freight Assistance Program (NFFA) continued to assist eligible commercial fishing operations. Payments amounting to $241,200 were paid to 643 commercial fishermen for the 1987 summer season. Payments for the winter season of 1987-1988 to 236 fishermen amounted to $105,300.

During the open water fishery of 1987 and winter fishery of 1987-1988, commercial fish production in Manitoba was 13.2 million kilograms. This was an increase of 8% from the previous year. Final payments totalling $10.8 million were paid out last December (1987) to Manitoba commercial fishermen for the 1986-1987 fiscal year breaking all previous records. The Freshwater Fish Marketing Corporation reported a favorable financial situation during the 1987-1988 fiscal year and substantial final payments to fishermen were anticipated.

A new licensing system for allocating winter commercial fishing licences was : implemented on Lake Manitoba following the establishment of a licence limit in 1986. This system was developed in consultation with the Lake Manitoba Commercial Fishermen's Association with the eventual goal of reducing the number of fishermen working on the lake from 732 to 400. The licensing system involves two classes of licences, one of which is transferable while the other is not. Transferable licences will be allocated to those people whose annual production had exceeded 200 kilograms. The person wishing to take over the licence must buy the equipment of the previous licence holder and have fishing experience on the lake. The non-transferable licences are for people whose annual production had been less than 200 kilograms. These people will not be able to transfer their licences when they leave the fishery thus reducing the overall number of fishermen on Lake Manitoba over a number of years.

For the second year of the three year program, commercial fishing during the open water season was closed on Lake Winnipegosis. This closure was intended to allow walleye stocks to rebuild and allow future harvest at increased levels. This fishery has been declining both biologically and economically for over 20 years, characterized by too many fishermen and too few fish. An employment package is coupled with this closure to provide income for open water fishermen. The Lake Winnipegosis Employment Opportunities Liaison Committee played a major role in reviewing and administering the 1987 employment projects. Eighteen commercial fishermen took part in the program, thirteen of which were involved in fisheries related projects. In addition, three served as members of the Lake Winnipegosis Employment Opportunities Liaison Committee and two fishermen found work with private businesses where their salaries were subsidized under the project fund.

Lake Winnipegosis was stocked with 53.5 million walleye fry of which approximately 13.4 million were stocked in rearing ponds for later release to Lake Winnipegosis as fingerlings. This was the second year of a five-year intensive walleye stocking program for this lake. It is firmly believed that a three-year closure of the fall fishery coupled with the stocking program will significantly improve the walleye stocks and benefit the commercial fishery in the long term.

A fishery rehabilitation management plan was initiated on Lake Winnipegosis to address resource and industry concerns. One aspect of the management plan being considered is to reduce the open water fleet through a vessel reduction program. It is believed that this program could help reduce fishing pressure on walleye stocks in order to maintain a restored Lake Winnipegosis commercial fishery. Consultations are being undertaken with fishermen in the development of this plan. Because of the management initiatives taking place, eight newsletters were distributed to fishermen to share information on this topic and other issues facing the Lake Winnipegosis fishery.

A 3" mesh net mid-winter fishery on Lake Manitoba operated in 1985 and 1986, was inactive in 1987 and then allowed for a third time in 1988. Traditionally, Lake Manitoba has been a walleye and sauger fishery using 3 3/4" mesh nets. The 3" fishery was designed to allow fishermen to harvest abundant perch populations which were not easily harvested with 3 3/4" mesh while limiting adverse impacts on walleye stocks. Approximately 183,500 kg of perch, sauger and walleye were harvested by 325 fishermen during the five week (January 25 - February 29) 3" mesh fishery. Perch accounted for 101,580 kg or 55% of this total while sauger and walleye accounted for 74,392 kg (41%) and 7518 (4%) respectively. During the three seasons the 3" fishery has operated, the most obvious trend has been the increase in the number of fishermen participating in the fishery. The perch catch has also increased in each year the 3" fishery has operated. The commercial fishery has proven successful in providing additional income to commercial fishermen without seriously impacting fish stocks. Discussions will be held with

Lake Manitoba fishermen to formulate a recommendation for the long term management of this fishery on Lake Manitoba.

The quota entitlement system of allocating commercial fishing rights on Lake Winnipeg has been in place since the spring of 1986. To date, 666 transfer applications have been received, of which 494 were approved while 172 were withdrawn or rejected. Based on discussions between Fisheries Branch and the Lake Winnipeg Fisheries Management Advisory Board, the number of quota entitlements that a person could hold was increased from 3 to 4 for specific Community Licencing Areas on Lake Winnipeg. This meets fishermen's needs for higher fishing incomes while maintaining the overall lake quota. Other Community Licencing Areas maintained the arrangement of one quota entitlement for any one season. As well, some Community Licencing Areas were combined, allowing fishermen more opportunity to transfer quotas within their expanded area. All other community areas were maintained as they were originally structured.

Lake St. Martin is one of the last significant commercial fisheries that is still largely an open access fishery. As a result, the fishery has not been used effectively to meet the needs of the area in terms of employment and income = opportunities. Fisheries Branch initiated discussions with Pineimuta Fisheries Inc., an organization that represents the Lake St. Martin commercial fishermen, to begin addressing these concerns and to work towards the development of a management plan. In consultation with Pineimuta Fisheries Inc., an upper licence limit of 126 for the 1987-1988 winter fishing season was established on Lake St. Martin. With this limit in place, a controlled entry licencing system is being developed in consultation with fishermen's representatives.

Fisheries Branch, in cooperation with Manitoba Northern Affairs, Northern Flood Committee and Manitoba Hydro played a pivotal role during the negotiation and subsequent resolution of fishing claims pursuant to Article 19.4 of the Northern Flood Agreement. Commercial fishermen from the communities of Nelson House, Norway House and Split Lake settled claims for damages to commercial fishing due to northern hydro-electric development.

The Norway House settlement was for $2.28 million of which $1.472 million was for damage to fishing prior to 1987. Some $810,000 of the settlement will be used to implement a three year program to maintain and develop the Norway House fishery in a manner which encourages fishermen to continue fishing despite the impacts of hydro-electric development.

Nelson House fishermen received $620,000 for damages to their fishery prior to 1987 and an additional $342,000 to implement the first year of a program intended to re-establish commercial fishing to a level that would have occurred had northern hydro-electric development not been undertaken.

The Split Lake fishermen settled for $456,900 of which $335,000 was compensation for damages to their fishery prior to 1987. The remaining $121,900 will be used for a one year program aimed at developing and maintaining the fishery.

The implementation of the compensation and encouragement programs in the three communities has caused Fisheries Branch to become more involved in an ongoing monitoring and evaluation of program effects. Manitoba's monitoring and evaluation obligations are referenced in the settlement documents and as a result Fisheries Branch has increased responsibilities in management of these fisheries.

Fishermen Employed in Manitoba's Commercial Fishery, 1986-1987

	Northern Lakes	Lake Winnipeg	Lake Manitoba	Lake Winnipegosis	Other Lakes	Overall
Summer						
Licence Holders	474	810	83	11	90	1,411
Hired Men or Helpers	142	190	0	0	10	335
TOTAL	616	1,000	83	11	100	1,746
Winter						
Licence Holders	203	325	635	153	294	1,596
Hired Men or Helpers	82	81	505	151	118	928
TOTAL	285	406	1,140	304	412	2,524
Annual						
Licence Holders	553	878	657	156	304	2,475
Hired Men or Helpers	178	201	505	151	118	1,134
TOTAL	731	1,079	1,162	307	422	3,609

Note:

Those who fish in more than one area or season or who fish both as hired men and licence holders, are counted only once in the appropriate "TOTAL" column. Where hired men and licence holder duplication occurs, the individual is counted as a licence holder. Therefore, the table does not total horizontally or vertically.

Commercial fishing statistics for the 1987-88 fiscal year were not available in time to be included in this report. They will appear in the annual report for the next fiscal year.

Commercial Fishing Production (Round Weights kg) by Area and Total Value By Species, 1986-1987

	Northern Lakes		Lake Winnipeg		Lake Manitoba		Lake Winnipegosis		Other Lakes[1]		Total Production			Total Value $		
Species	**Summer**	**Winter**	**Summer**	**Winter**	**Summer**	**Winter**	**Summer**	**Winter**	**Summer**	**Winter**	**Summer**	**Winter**	**Total**	**Summer**	**Winter**	**Total**
Whitefish	893,450	116,150	1,111,500	765,500		19,550		61,800	92,900	302,800	2,097,850	1,265,800	3,363,650	1,508,850	1,652,550	3,161,400
Roe[3]	(100)								(3,750)		(3,850)		(3,850)	(12,250)		(12,250)
Pickerel	421,500	67,750	1,961,350	160,600		419,950		43,200	290,350	93,650	2,673,200	785,150	3,458,350	10,309,350	3,592,150	13,901,500
Sauger	1,900	300	601,850	566,350		237,950		5,700	4,150	1,400	607,900	811,700	1,419,600	1,637,450	2,532,050	4,169,500
Pike	531,000	161,200	154,400	38,150		112,750		562,350	134,550	405,850	819,950	1,280,300	2,100,250	836,150	1,636,650	2,472,800
Tullibee	53,850	13,900	2,150	50				50	39,600	17,500	95,600	31,500	127,100	61,200	22,300	83,500
Trout	39,950	100									35,950	100	36,050	27,850	200	28,050
Mullet	4,800	32,000	250	2,300	252,800	406,900	104,200	459,350		60,300	362,050	960,850	1,322,900	55,800	259,750	315,550
Goldeye	4,450	400	1,400	450		50		18,000	2,450	1,800	8,300	20,700	29,000	7,700	20,950	28,650
Perch	300	1,400	32,550	22,450		39,100		11,000	1,700	7,600	34,550	81,550	116,100	128,850	323,950	452,800
Carp			86,200	19,550	221,950	78,000	6,400	176,150	Tr[2]	27,150	314,550	300,850	615,400	79,900	80,050	159,950
Sturgeon	4,750										4,750		4,750	49,850		49,850
Bass			1,300	28,450							1,300	28,450	29,750	2,300	69,200	71,500
Catfish			1,850								1,850		1,850	900	50	950
Misc.[4]			100	250							100	250	350	200	50	250
TOTAL	1,951,950	393,200	3,954,900	1,604,100	474,750	1,314,250	110,600	1,337,600	565,700	918,050	7,057,900	5,567,200	12,625,100	14,706,350	10,189,900	24,896,250

[1] *Includes Archies, Buffalo, Cedar, Chitek, Dauphin, Dog, Goldeye, Goose, Pelican, Proulx, Red Deer, Sisib, St. Martin, Swan, Waterhen, William Lakes*
[2] *Trace (small amount)*
[3] *Figures for roe are not included in table totals*
[4] *Includes crappies, maria, bullheads.*
NOTE: *Total value includes both initial value and final payment*
Commercial fishing statistics for the 1987-88 fiscal year were not available in time to be included in this report. They will appear in the annual report for the next fiscal year.

Commercial Fishing Production (Round kg), Total Value and Employment (Licenced Fishermen Plus Hired Men) 1977-78 to 1986-87

	Northern Lakes		Lake Winnipeg		Lake Manitoba		Lake Winnipegosis		Other Lakes		Manitoba Total		Total
Year	Weight(Kg)	$ Value	Weight(Kg)	$ Value	Weight(Kg)	$ Value	Weight(Kg)	$ Value	Weight(Kg)	$ Value	Weight(Kg)	$ Value	Employment
1977-78	3,418,800	2,395,000	4,764,950	5,175,650	1,726,150	566,850	2,013,900	821,700	1,286,050	828,550	13,209,850	9,787,750	3,170
1978-79	2,915,500	2,629,000	4,949,100	5,765,300	1,535,500	713,350	2,462,000	1,022,050	1,577,650	1,425,900	13,439,750	11,555,600	3,161
1979-80	3,679,500	3,261,500	5,258,100	7,642,850	2,921,450	2,790,950	2,926,000	1,337,750	1,846,400	1,919,450	16,631,450	16,952,500	3,213
1980-81	3,474,300	3,576,200	5,652,800	9,066,800	2,330,400	2,270,950	3,172,650	1,375,200	1,816,100	2,346,750	16,446,250	18,635,900	3,659
1981-82	2,888,150	3,344,350	5,929,100	9,935,800	2,637,850	2,462,900	1,873,250	972,450	1,320,150	1,802,650	14,648,500	18,518,150	3,767
1982-83	2,732,850	2,252,500	5,446,900	6,963,800	3,290,800	1,825,900	2,550,350	1,096,900	1,446,900	1,235,750	15,467,800	13,374,850	3,826
1983-84	2,167,250	2,431,650	5,502,100	8,871,650	2,457,500	2,224,700	1,859,550	1,266,900	1,218,950	1,582,650	13,205,350	16,377,550	3,737
1984-85	2,563,850	3,350,000	5,950,100	9,870,550	1,751,050	2,260,900	1,939,700	1,513,650	1,545,600	1,989,050	13,750,300	18,984,150	3,811
1985-86	2,543,250	2,961,900	5,521,500	10,304,350	1,601,000	1,817,200	1,875,150	1,077,900	1,288,900	1,707,750	12,829,800	17,869,100	3,660
1986-87	2,345,150	3,545,500	5,559,000	14,191,950	1,789,000	3,250,550	1,448,200	1,235,750	1,483,750	2,672,500	12,625,100	24,896,250	3,609

NOTE: *Total Value includes both Initial Value and Final Payment*

Fisheries Enhancement

A program to monitor the ecological impacts of hydroelectric development of the Churchill and Nelson Rivers on fisheries resources, as required under the Northern Flood Agreement, continued in 1987. Water levels throughout the study area in 1987 were considerably lower than levels experienced in 1986 and were the lowest levels experienced since the beginning of the study. The low lake levels had a marked effect on fishing success. The influence of the high water levels experienced in 1986 on fish reproductive success was also apparent in lakes such as Cross Lake where appreciable numbers of whitefish and ciscoes of the 1986 cohort were sampled. Fish reproduction in Cross Lake appears to have improved since efforts were made to reduce the degree of drawdown on the lake during the late winter-early spring period.

Twenty-two fisheries projects were undertaken by the Manitoba Habitat Heritage Corporation throughout southern Manitoba. Two stream rehabilitation projects involved the re-creation of walleye spawning habitat in two channelized streams, Mink Creek (Dauphin Lake) and Wavey Creek (Lake Winnipeg). The addition of field stone to create spawning rapids has significantly improved walleye reproductive success in these waterways, contributing to larger walleye populations in Dauphin Lake and Lake Winnipeg.

The installation of aeration equipment in Deloraine Reservoir and Lake Stormon has assured year round fish survival in these lakes prone to winterkill. This has provided additional sport fishing opportunities in a region where demand is extremely high. In Rock Lake an alternative to mechanical aeration is being C experimented with, where oxygen-rich groundwater is being ponded adjacent to the lake to provide a fish refuge during the winter.

A 25-year land easement of a stream corridor near St. Malo was negotiated with a landowner in order to improve and develop a stream trout fishery in close proximity to the city of Winnipeg. Improvements included the erection of fencing to exclude cattle from the stream, restricting access to watering sites and the construction of small bridges. Undertaken in cooperation with Manitoba Fly Fishers, this project demonstrates various types of land use practices that can improve water quality and decrease soil erosion in order to increase fish productivity in streams. Some of the other projects included chemical reclamation of Beaver Lake (Duck Mountain) and Hunt and Lyons Lakes (Whiteshell), three stream workshops, lake improvement work at the Fort Whyte Centre, walleye rearing pond construction at Crossen Marsh (Lake Manitoba), a stream rehabilitation film, and installation of a fish screen in a Ducks Unlimited project at Canvasback Bay.

A province wide fish habitat inventory and classification system was initiated. Specific biological and physical data on approximately 11,000 named waterbodies (including fluvial systems) ultimately will be stored in a hierarchical watershed framework. The classification system will establish a present level of fish habitat quality, assisting fisheries managers in developing a coordinated plan for the protection, rehabilitation and enhancement of Manitoba's fish resources and habitat.

In 1987 193.1 million walleye eggs were collected from five walleye spawn collection sites. Swan Creek was the prime source of walleye spawn accounting for 53% of the total collected. Walleye eggs incubated in four hatcheries (Swan Creek, Grand Rapids, Whiteshell, and Winnipegosis) resulted in 100.3 million fry produced. Of these, 75% were allocated to commercial fisheries with Lake Winnipegosis, Lake Manitoba, Archie Lake and Lake Winnipeg receiving 50, 22.3, 0.9, and 0.5 million fry respectively. The remaining 25% were stocked in sport fishing waters with Lac du Bonnet (5.0 million), First Cranberry Lake (4.5 million) and Big Island Lake (3.5 million) receiving the largest individual stockings.

Fourteen rearing ponds were utilized to raise walleye fingerlings. Survival ranged from 0 to 26% and in total, approximately 3 million fingerlings were recovered. Thirteen ponds were managed in the traditional fashion while the Steeprock rearing pond was intensively managed. The latter involved fertilization, monitoring of food availability and early release. The Steeprock rearing pond contributed 99% of the walleye fingerlings produced this year.

This was the second year of a study initiated to identify walleye fry stocking locations based primarily on food availability in Dawson Bay (north end of Lake Winnipegosis). In addition, a secondary study was conducted on Falcon Lake to compare the abundance of food available to naturally spawned walleye versus stocked walleye fry. Both studies were undertaken as part of the effort to rehabilitate the Lake Winnipegosis commercial walleye fishery. Information derived from both studies will be used to develop provincial guidelines that identify optimum habitat types for the survival of stocked walleye fry.

A manual identifying recommended treatments for the diseases and parasites of walleye eggs was completed. The manual was developed in order to increase the survival of walleye incubated in Manitoba's hatcheries.

Numbers of Fish Distributed to Sport Fishing Waters from Fish Hatcheries 1987-88

	Fry	Fingerlings	Yearlings	2 Year and Adults
Walleye	23,840,000	21,829		
Northern pike				4,448
Muskellunge	400,000			
Perch				3,700
Smallmouth bass				195
Lake trout			75,000	
Splake			42,180	
Rainbow trout	10,000		38,800	44,585
Brook trout		121,000	27,100	165
Brown trout		245,750	4,600	7,900
Arctic char				1,365

A variety of species, ranging from walleye fry to adult rainbow trout were stocked in 117 sport fishing waters.

Sport Fishing

The Red River north of Winnipeg continued to be a focal point for sport fishing activity in the province. The excitement over channel catfish and the walleye "greenback" run continued to be of interest and concern. The question whether the river can handle the added harvest pressure is continually raised by the public. The branch has held a number of public meetings on the topic and formed an advisory group to develop a management plan for the Red River.

In order to restrict without impairing opportunities for recreational angling, a number of new regulations were implemented. Most of the regulation changes involve lower limits, size or slot limits and the use of barbless hooks, all designed to reduce harvest through catch and release angling.

Management plans and processes were also developed or initiated in conjunction with user groups for several areas including the Kississing Lake, Winnipeg River upstream from Pointe du Bois, Dauphin Lake, Rocky Lake and Cormorant Lake.

The successful development of a trophy smallmouth bass fishery north of 53$ in Two Loon Lake near The Pas resulted in the stocking of a number of other similar small lakes in the area. These stockings could produce more high quality smallmouth bass fishing in northern Manitoba in the years to come.

Research on Clearwater Lake, also near The Pas, conducted in co-operation with lodge operators has shown that during the summer lake trout taken from deep water and released have an excellent chance of survival. These findings are significant to the catch and release program of the branch not only in this lake, but in similar waterbodies.

In co-operation with the Departments of Environment and Workplace Safety and Health, Business Development and Tourism and Health, guidelines for the consumption of fish contaminated with mercury, were drawn up and made available to the public.

Several lakes in the Duck Mountain were reclaimed and stocked with trout species. These included Two Mile, Beaver and Verall Lakes. The program was funded jointly by the Swan Valley Fisheries Enhancement Corporation and the Manitoba Habitat Heritage Corporation.

A new program involving the stocking of adult pike in urban ponds and lakes was started to provide youths with a place to fish. The fish are purchased from commercial fishermen in spring and in most cases are paid for by local user groups.

Trout Farming

Approximately 30 licences were issued to fish farmers operating on Crown land or commercially on private land. The number of hobby fish farmers operating on private property who do not require a licence is estimated at 300-400. A trout farmer in the Wabowden area produced commercial quantities of trout utilizing a gravel pit and intensive feeding. A large new intensive fish farm, Elders Aquafarms, started operations indoors in an old malting plant in Winnipeg.

Bait Fishing

A total of 39 fishermen were licenced for commercial bait fishing in 1987-88. The reported production of frozen bait fish was 98,000 kg.

The four live bait fishermen produced approximately 45,000 dozen bait fish. The moratorium on the expansion of live bait fish remained in place for this season, but was scheduled to be lifted for the 1988-89 season.

Angling Licence Sales and Revenue, 1978/79 to 1987-88

Year	Resident Licences			Non-Resident Licences Conservation Licences			Non-Resident Licences			Total Licences	
	Number	Fee	Revenue	Number	Fee	Revenue	Number	Fee	Revenue	Number	Revenue
1978-79	156,553	3.30	477,979.15	10,918	5.50	57,569.75	29,929	11.00	322,571.00	197,400	858,119.90
1979-80	155,790	3.30	475,621.75	9,590	5.50	50,534.25	31,029	11.00	334,312.75	196,409	860,468.75
1980-81	159,584	3.30	487,384.20	8,658	5.50	45,612.50	32,353	11.00	348,565.25	200,595	881,561.95
1981-82	159,233	3.30	486,394.90	8,439	5.50	44,369.50	32,037	11.00	344,723.50	199,709	875,487.90
1982-83	164,384	5.00	741,087.50	3,777	12.00	43,502.50	28,561	20.00	557,353.50	196,722	1,341,943.50
1983-84	157,724	5.00	710,986.50	3,592	12.00	41,346.50	29,852	20.00	582,435.00	191,168	1,334,768.00
1984-85	154,489	5.00	696,541.50	3,443	12.00	39,645.00	30,268	20.00	590,545.50	188,200	1,326,732.00
1985-86	154,602	6.00	851,476.00	10,325	15.00	149,824.00	22,239	30.00	656,289.00	187,166	1,657,589.00
1986-87	158,412	6.00	872,568.00	12,536	15.00	181,906.50	21,809	30.00	643,571.00	192,757	1,698,045.50
1987-88	158,118	6.00	870,850.00	13,834	15.00	200,748.50	21,861	30.00	645,063.00	193,813	1,716,661.50

NOTE: *Revenue figures are net (less vendor's commission).*
Non-Resident 3 day Licences were discontinued in 1985/86.
Non-Resident Conservation Licences were introduced in 1985/86.

Forestry

This branch administers the Forest Act and Dutch Elm Disease Act, develops, implements and evaluates commercial harvesting plans for Manitoba's forests, administers timber cutting licensing and measurements; conducts tree improvement and forest genetic studies; plans and co-ordinates reforestation and forest stand tending; maintains a forest inventory; and develops and implements forest protection programs including Dutch Elm Disease control.

Forest Management

Several proposed industrial development projects requiring a large continuous wood supply were evaluated during the year. In particular, significant interest has been shown in the use of trembling aspen for a variety of purposes. Consequently re-calculations of annual allowable harvest levels for trembling aspen in all Forest Management Units of Manfor's specified area were completed. This re-calculation was based on potential pulpwood utilization and resulted in potential significant increases in annually available volumes of aspen where used for pulp and paper production.

Forest survey crews collected forest measurement data required for the revision of the stand/stock volume table for Forest Management Units 83, 84, 85 and 87 in the Nelson River Forest Section.

The "FORIST" System (Forestry Geographic Information System) was augmented with a second shift in July 1987. Both shifts worked in the Lake Winnipeg East, K Pineland and Interlake Forest sections until January 1988. At this time, the work areas were geographically separated to provide for the entry of forest cover data in the Mountain, Saskatchewan River and Highrock Forest sections. As of March 31, 1988, Forest Management Units 20, 30, 35, 38 and 39 were completed and electronically stored, covering an area of 26,450 kilometers. Additional Forest Management Units were in various stages of processing.

Several permanent sample plots designed to track forest growth changes over time are being established in representative forest stands across the Forest Zone of the province. The sample plots will be remeasured at five year intervals to establish growth trends and to permit prediction of volume accumulations in the future.

An examination of current forest site classification techniques and procedures for Manitoba is in progress in co-operation with the Northern Forest Research Centre of the Canadian Forestry Service in Edmonton. A test area for the system application was selected over a range of forest growth conditions in the northeast corner of the Duck Mountain Provincial Forest. Results obtained indicate a potential for major improvements in forest site classification. Evaluation or rating with this system is possible using an integrated information approach based on climate, soil, landform, moisture and available forest cover detail.

Table 1: Forest Inventory Projects, 1987-88

Activity	Area In Square Kilometres
Aerial Photography	7,600
Forest Cover Mapping	12,940
Air Photo Interpretation	16,670
Forest Surveys	21,560
Area Compilation (FORIST Library)	25,060
Forest Inventory Reports	3,700
Township Air Photo Mosaics	18,500

Timber Management and Development

As in the previous fiscal year, 1987-88 was a buoyant year for the forest products industry. Strength continued or improved throughout the major lumber and paper markets. Coupled with the 80 cent Canadian dollar as well as favorable off-shore exchange rates, prices for the various forest products held or increased substantially in a variety of sectors. Some forecasts however, were for a levelling off or a downward trend in the latter half of 1988 or early in 1989. Most mills, especially in the pulp and paper sector, reported operating at or near capacity throughout most of the year. This coupled with a quiet labour scene allowed many companies to post new volume output highs and corresponding substantial profit improvements. M
The most exciting market trends exhibited this past fiscal year were in the pulp and paper field. Northern bleached softwood Kraft prices topped $700.00 US per tonne delivered in Europe and projections call for this price trend to continue upwards, possibly going through the $800.00 per tonne level by 1988. The outlook in this chemical paper grade market/pulp field is encouraging and no doubt bolstering the CTM (another Kraft paper market) and newsprint paper market. The market outlook for the next year is strong, as any new capacity coming on stream is expected to be almost immediately absorbed by this buoyant market. New mills which are slated for production in 1990-91, however, will be adding substantial capacity to a market which, by then, could have peaked and be on a down side.

Lumber markets remained fairly stable throughout the fiscal year. The spruce, pine and fir prices ranged from

a low of $180 to a high of $220 US per thousand board feet throughout most of the year. Due to a strong demand, it would appear that the 15 percent self-imposed Canadian export tax on lumber to the United States had very little effect on production and prices. As a result of the decline of US housing starts and the slightly increasing value of the Canadian dollar (versus the US dollar), some are predicting a weakening of this market as early as the second half of 1988. In addition, the movement of the mortgage and interest rates combined with some possible labour unrest in the west coast forest industries could add or detract from the projected slight softening of the lumber markets.

The composite board markets tightened up substantially with several new mills coming on stream both in Canada and the USA. This has been one of the leading forest products growth areas. Minnesota has, for example, developed five panel board industries over the last ten years with an initial investment of over $200M US dollars. Interest in a Manitoba plant culminated with the announcement on January 8 that a feasibility study was underway for an oriented strand board plant to be established in the Swan River area. The company funding the study is the Penn-Co Group, a local Manitoba company from Blumenort. They have until the end of 1988 to determine whether or not they wish to proceed with such a proposal.

Developments within the Manitoba forest products manufacturing segment of the industry were again very minimal this year. The most significant event was the new annual output in excess of 60 million board feet at the Manfor sawmill. This was a result of the re-development of their sawmill and the steadily gaining output level which allowed them to set this new record. The provincial volume of timber utilized varied little from last year as major users of timber were already running at or near their capacity.

Timber Utilization

The harvest of timber from Provincial Crown land totalled 1,854,337 m3 for the 1987-88 fiscal year. The softwood component accounted for 1,688,032 m3 and the hardwood component amounted to 166,305 m3. This reflects an increase of 185,205 cubic meters or 11.1% more wood harvested than the previous year. The production of mine timber, lumber and pulpwood rose but declines occurred in railway ties, poles, posts, fuelwood and round timber forest products compared to last year.

The forest revenues rose to $2,961,462 which represents an increase of 10.4% over the previous year. This is attributed to the rise in the volume of wood harvested as well as the slight increase in the timber dues and charges.

The timber stumpage level was reviewed utilizing Manitoba Forest Products price index and it resulted in an increase of 9.2% over the 1984-85 base year. New dues schedules were calculated and the industry was advised of the new dues rate to come into effect on May 1, 1988.

Timber permits issued this fiscal year totalled 5,510 and represents a decline of 451 permits from the previous year. This change in numbers is attributed to a reduction of public interest in the cut-your-own fuelwood program and post areas.

Thirty-six timber permit quotas were issued in 1986/87. This represents a reduction of one from the previous fiscal year. Timber sale quotas numbered 201, which is a decline of four from those in effect on April 30, 1987. This represents a decline of 68.1% from the original 631 timber sale quotas first issued in 1965.

This year's Metric Scaling Course was held in Swan River and was attended by 21 candidates. Of those that attended, 19 completed the course and were recommended to receive a Manitoba Scaling Licence Certificate.

Interest level in growing Christmas Trees and woodlots developed throughout the year and culminated with the department co-sponsoring another field day on the P production of Christmas trees. Branch staff also assisted the Manitoba Forestry Association with this years' annual meeting on "Woodlots for Fun and Profit." In addition, a proposal was approved for a summer graduate student to investigate the level of interest in woodlots for consideration in future federal-provincial forestry agreements.

Annual Forest Production by Forest Product 1983-84 to 1987-88

Year	Pulpwood		Lumber		Fuelwood		Other		Total	
	Volume (m^3)	%	Volume (m^3)	%	Volume (m^3)	%	Volume (m^3)	%	Volume (m^3)	%
1983-84	837,756	55.8	509,476	34.0	102,474	6.8	50,626	3.4	1,500,332	100
1984-85	1,201,970	71.9	330,228	19.7	103,593	6.2	37,240	2.2	1,673,031	100
1985-86	1,065,361	63.1	474,826	28.1	110,561	6.5	38,149	2.3	1,688,897	100
1986-87	927,085	55.5	598,168	35.8	98,039	5.9	45,840	2.8	1,669,132	100
1987-88	1,007,882	54.4	733,269	39.5	84,573	4.6	28,613	1.5	1,854,337	100

Revenue from the Sale of Crown Timber

Year	Total Harvest (in cubic metres)	Revenue[1]
1973-74	1,588,759	843,081.37
1974-75	1,932,383	924,586.53
1975-76	1,851,5[illegible]2	1,739,308.27
1976-77	1,519,998	1,345,601.02
1977-78	1,646,562	1,176,078.00
1978-79	1,714,300	1,292,180.63
1979-80	1,940,082	1,624,290.86
1980-81	2,320,031	1,908,776.72
1981-82	1,782,078	1,792,589.82
1982-83	1,478,092	1,383,734.70
1983-84	1,500,332	1,964,510.80
1984-85	1,673,031	2,302,339.73
1985-86	1,688,897	2,473,081.25
1986-87	1,669,132	2,682,289.37
1987-88	1,854,337	2,961,462.33

(1)Dues in respect of Crown Timber Harvested

Timber Cut on Crown Land, 1987-88

Product	Species	Cubic Metres		Percent
Lumber	Spruce, Pine, Fir, Tamarack, Cedar	655,380		
Poplar, Birch and other hardwoods		77,889	733,269	39.54
Pulpwood	Spruce, Pine, Fir	980,901		
	Poplar	26,981	1,007,882	54.35
Railway Ties	Pine		200	0.01
Line Poles	Cedar, Pine, Tamarack, Spruce		106	0.01
Fence Posts	Cedar, Pine, Tamarack, Poplar, Spruce, Oak		11,292	0.61
Round Timber	Spruce, Pine, Tamarack		15,301	0.83
Mining Timber	Pine, Spruce		1,714	0.09
Fuelwood	Birch, Poplar, Pine Spruce and other		84,573	4.56
	TOTAL 1987-88		1,854,337	100.00
	TOTAL 1986-87		1,669,132	

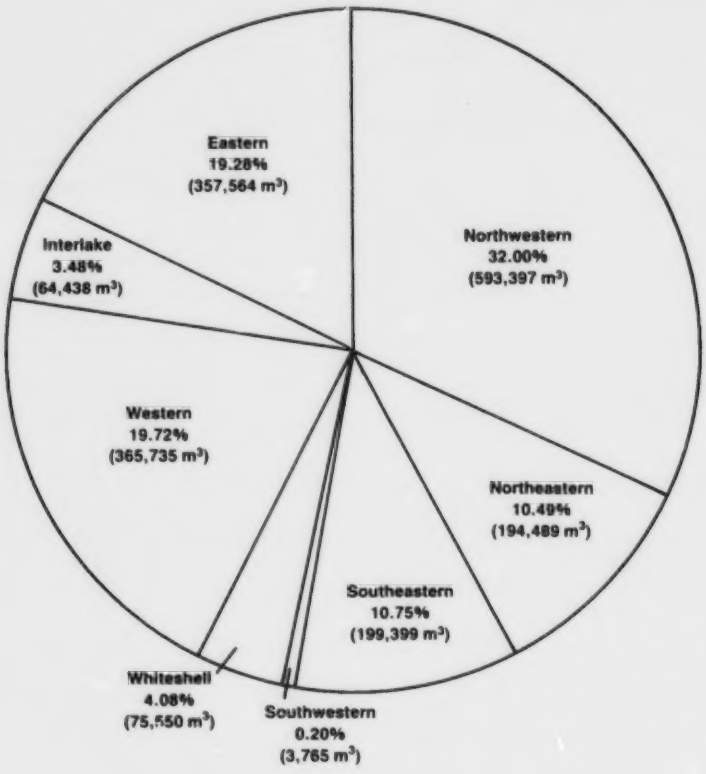
Permits, Licences and Quotas on Crown Lands (including Provincial Forests), 1986-87 and 1987-88

		1986-87	1987-88
1.	Timber Dealers and Sawmill Licences		
	Timber Dealers	65	65
	Sawmill Licences	112	113
2.	Permits and Licences Covering Timber Cutting Rights		
	PERMITS		
	TIMBER SALE AGREEMENTS	5,961	5,510
	Awarded	41	9
	Previously Awarded	162	203
	TOTAL	203	212
3.	Timber Seizures Recorded	12	4
4.	Timber Allocations in Force at March 31		
	Timber Sales	205	201
	Timber Permits	37	36
	TOTAL	242	237
5.	Forestry Revenue (Crown Charges)	$2,965,595.75	$3,282,283.76

Permits and Leases in Provincial Forests, 1986-87 and 1987-88

		1986-87	1987-88
1.	General permits and leases		
	Sawmill sites	3	—
	Trappers cabins	45	38
	Hunting and fishing cabins	3	4
	Other lodges, cabins, residences	2	6
	Grazing fences	—	—
	Maintain roads and/or spurlines	3	1
	Youth groups (camping and sports)	5	7
	Land use for municipal purposes	6	6
	Land use for government purposes	5	4
	Miscellaneous	30	20
	TOTAL	102	88
2.	Hay permits		
	Number of permits	16	13
	Tonnes of hay	236.86	206.58
3.	Grazing permits		
	Number of permits	3	3
	Head of livestock	45	58

Percentage of Timber Produced Within Departmental Regions 1987-88



Total Timber Cut: 1,854,337 m³

Record of Timber Scaled or Manufactured, 1987-88

	LUMBER — CUBIC METRES								PULPWOOD — CUBIC METRES				PIECE PRODUCTS — CUBIC METRES				FUELWOOD — CUBIC METRES						CUBIC METRES	
																	GREEN							
	Metres Mine Timber	Christmas Trees Pieces	Spruce	Balsam	Jack Pine	Other Soft Woods	Poplar	Other Hard Woods	Spruce	Balsam	Jack Pine	Poplar	Railway Ties	C.W Poles	P.J. Poles	Posts	Spruce	Jack Pine	Poplar	Other Hard Woods	Dry	Slabs and Tops	Round Timber	Totals
SUMMARY BY REGIONS																								
Northeastern		30	58,380		36,377	56	195		52,983		35,322					1	2,157	3,162	924	476	2,466		10	194,489
Northwestern	1,714	257	192,802		119,198		20		163,890		106,987				56	115	420	704	2,342	747	3,942		480	593,397
Whiteshell		247	86		10,261	136	6,969	157	12,871	300	19,798	15,970	200		15	228	3	373	4,133	1,488	1,318	235	1,009	75,550
Southeastern		4,836	679		33,433	262	39,638	1,804	50,916	3,707	27,393	10,755		35		3,344	30	546	7,794	6,885	3,994	1,269	6,915	199,399
Southwestern		30	23				288									79	12		2,389	492	313		169	3,765
Eastern		8,772	1,844		15,260	2,021	3,815	1,153	246,142	179	72,885	50				617	1,871	796	4,404	2,390	2,772	28	1,337	357,564
Interlake		215	5,241	928	3,142		516	197	36,086	374	7,151					467	75	951	3,253	1,073	3,200	2	1,782	64,438
Western		1,125	129,031	26	43,305	909	19,793	3,344	116,304	4,727	22,906	206				6,441	82	321	6,109	4,901	3,729	2	3,599	365,735
TOTALS	1,714	15,492	388,066	954	262,976	3,384	71,234	6,655	679,192	9,287	292,422	26,981	200	35	71	11,292	4,650	6,853	31,348	18,452	21,734	1,536	15,301	1,854,337
SUMMARY BY STATUS OF LAND																								
Prov. Forests																								
Spruce Woods																18			182		8		1	209
Duck Mountain		342	33,940	26	21,867		18,913	2,268	32,794	2,479	6,260	27				602	2	77	2,413	2,791	1,358	2	1,248	127,067
Porcupine			84,338		21,315	600	400	776	65,489	1,596	15,329	150				4,954		55	680	680	2,052		1,581	199,995
Sandilands		2,583	376		28,346	68	8,346	568	29,448	1,832	22,168	9,711		35		2,369		270	3,370	4,677	3,691	805	4,305	120,385
Cormorant					355		20									25	29	202	44	68	992		32	1,767
Agassiz		230			599	17	2,560		5,102		296	12,861				197	48	194	4,201	1,495	1,093	529	149	29,341
Belair					125				1,196	145	3,883					30	778		705	206	48		20	7,136
N.W. Angle		500	99		237	126	19,457	1,053	10,983	975	3,418	1,250				270		12	455	721	62	25	154	39,297
Turtle Mtn.							125												25	152	132			434
Whiteshell			86		10,261	119	3,669	157	12,766		19,710	629	200		15	102	2	198	749	176	267	30	852	49,988
Cat Hills					216				42		167								35	25	10	12	1	508
Brightstone																	8		188	112	72			380
TOTAL PROV. FORESTS		3,655	118,839	26	83,321	930	53,490	4,822	157,820	7,027	71,231	24,628	200	35	15	8,567	867	1,008	13,047	11,103	9,785	1,403	8,343	576,507
OTHER PROV. LANDS	1,714	11,837	269,227	928	179,655	2,454	17,744	1,833	521,372	2,260	221,191	2,353			56	2,725	3,783	5,845	18,301	7,349	11,949	133	6,958	1,277,830
TOTALS	1,714	15,492	388,066	954	262,976	3,384	71,234	6,655	679,192	9,287	292,422	26,981	200	35	71	11,292	4,650	6,853	31,348	18,452	21,734	1,536	15,301	1,854,337
SUMMARY BY METHOD OF DISPOSAL																								
Permits		4,949	13,955	26	20,928	1,338	9,812	1,134	33,243	3,711	14,455	20,714		35	15	9,074	3,250	5,437	28,440	13,481	21,665	1,112	12,690	214,495
Sales	1,714	10,541	142,581	928	73,542	150	57,641	4,610	260,540	5,541	70,080	6,267	200		56	2,206	1,400	1,396	2,908	4,296	69	424	2,609	639,138
Berths			231,515		167,837	1,896	3,781	911	384,742		207,618					12		20		695				999,027
Seizures		2	15		669				667	35	289												2	1,677
1987-88 TOTALS	1,714	15,492	388,066	954	262,976	3,384	71,234	6,655	679,192	9,287	292,422	26,981	200	35	71	11,292	4,650	6,853	31,348	18,452	21,734	1,536	15,301	1,854,337
					733,269					1,007,882									84,573					
1986-85 TOTALS	157	18,549	324,418	322	196,718	1,482	69,385	5,843	607,412	3,907	278,057	37,709	1,388		182	20,127	3,678	7,742	35,627	19,769	28,575	2,648	23,986	1,669,132
					598,168					927,085									98,039					

Silviculture

The Forestry Branch and the forest industry were, once again, able to increase the forest renewal effort on burned and cut-over forested lands. A total of 15,240 hectares were treated with some form of silvicultural activity. This represented a 16% increase over the 1986-87 program. Of this total, 50% of the programs were carried out by the forest industry and 50% by the Forestry Branch. The total area regenerated (planted or scarified for natural regeneration) was 7,318 hectares. This represents a 40% increase over the previous year.

In the spring and fall of 1987, approximately 13.4 million bareroot and containerized seedlings were planted. This was an increase of 30% over the previous year. The Forestry Branch planted approximately eight million seedlings of which 60% were planted through tendered tree contracts, with the balance being planted by departmental employees. As in the past, the planting contract have proven to be very successful and economical and it is anticipated that they will increase in the future. All of the seedlings planted were produced at the Pineland and Clearwater Provincial Forest nurseries. The one exception was the production of approximately 700,000 container seedlings grown by a private grower for the Abitibi-Price Inc. reforestation program.

Mechanical site preparation for the 1988 planting program decreased by approximately 16%. This slight decrease in site preparation was a direct result of the requirement to refill some of the previous plantations and the branch's intent to plant several areas without prior site preparation.

Scarification of cutovers for natural regeneration increased by 48%. This method of forest renewal has proven to be very successful on many of the jack pine cutovers. Due to its cost effectiveness, this has become an integral part of the forest renewal program.

The Forestry Branch and the forest industry used herbicides on an operational basis for both site preparation and the release of plantations from vegetative competition. The total area treated was 970 hectares, an increse of approximately 34% over the 1986-87 program when 725 hectares were sprayed.

Mechanical thinning or release was carried out on 1,076 hectares of older plantations and young natural stands. This is a three fold increase over the previous year as funding once again became available for these intensive management programs.

Regeneration surveys were carried out on 27,000 hectares of cut-over and burned forested lands. The purpose was to monitor new and existing plantations and identify non-satisfactory stocked lands that require silvicultural treatment to bring them back into forest production.

An enhanced cone collection program increased the inventory of white spruce seed in all major seed zones in the province. To accomplish the objective of developing the seed supply for five to ten years, an aerial collection program, using a helicopter and a cone rake was implemented in the Western, Interlake and Eastern regions. The aerial collection in conjunction with additional ground collections provided the Branch with over 530 hectoliters of white spruce cones. The yield of the cone crop proved to be excellent and the goal of increasing the seed supply was met.

Pineland Provincial Forest Nursery

The Pineland Provincial Forest Nursery shipped approximately 9.59 million seedlings for the operational planting program, the woodlot program, and the operational research planting carried out by various sections of the branch. This total consisted of 7.3 million bareroot seedlings and approximately 2.3 million containerized seedlings. This was a 63% increase over the previous year. The largest increase was in the bareroot seedling production where the technological changes made in the last two to three years have resulted in a greater number of high quality bareroot seedlings being grown.

A problem encountered with the increase in seedling production was a lack of cold storage facilities to hold the seedlings until they could be planted in the field. Cold storage facilities were rented in Winnipeg, but due to the uncontrolled environment in this facility, some seedlings were lost during this storage period. Due to extreme deterioration in quality, approximately 400,000 seedlings were destroyed. With the completion of the new cold storage facility at the nursery in 1987, the storage problem should be eliminated.

Other major activities at the nursery included: transplanting 2.2 million bareroot seedlings, transplanting 700,000 containers to the bareroot fields, converting three shade frames to cold frames for the production of transplant seedlings; constructing a dry storage building, lifting and packaging 1.4 million Z bareroot seedlings and three-quarters of a million containerized seedlings in the fall, and processing 764 hectoliters of cones which yielded approximately 834 kilograms of seed.

Clearwater Provincial Forest Nursery

Clearwater Provincial Forest Nursery shipped 3.9 million containerized seedlings to Manfor Ltd. and the Northern Region. These crops were grown in the 20 greenhouses that are now operational at the nursery.

To meet the projected requirements for 4.8 million seedlings in the spring and fall of 1988, 19 greenhouses were sown in June of 1987 for an overwintered crop. An additional seven greenhouses were sown in January of 1988 to produce the current crop.

Tree Improvement and Genetics

Throughout the year, this project was expanded to include four major efforts in four regions. Activities of each of the programs follows:

Southern Region:

In the southern region, two black spruce family test sites were identified and the site was prepared for planting in the spring of 1988. The seedlings for these sites are being grown in the tree improvement facility at the Pineland Provincial Forest Nursery.

Eastern Region:

A black spruce program in the eastern breeding zone was established as a cooperative effort between Abitibi-Price Inc. and the eastern region. Cones and scions from a total of 450 plus trees were collected, the seed extracted and grafting carried out. Family test sites and a seed orchard site were identified and will be site prepared in 1988.

Northern Region:

In conjunction with Manfor Ltd. and the northern region, cone and scion material was collected from 78 black spruce plus trees in the northern breeding zone. Seed from this collection was also extracted and scion material was grafted at the Pineland Provincial Forest Nursery. An additional 372 plus trees will be collected in 1988.

Western Region:

In conjunction with the Western Region, cones were collected from 380 white spruce plus trees in the western breeding zone. All of these trees have been flagged to collect the scion material at a later date.

The jack pine tree improvement program was once again very active, resulting in the establishment of a seed orchard for the Interlake Region. This program is administered by the Canadian Forestry Service under the Canada-Manitoba Forest Renewal Agreement.

1987-88 Forest Renewal Activities

	Province of Manitoba Regional Program	Abitibi-Price Inc.	Manfor	Total
Renewal				
Trees Planted	7,714,000	2,601,000	3,081,000	13,396,000
Hectares Planted	3,193	1,254	1,247	5,694
Hectolitres of Cones Collected	659	37	157	853
Hectares Scarified for Natural Regeneration	741	nil	883	1,624
Hectares Site Prepared	2,507	1,401	1,568	5,476
Total Area Regenerated	3,934	1,254	2,130	7,318
Stand Tending				
Hectares Mechanically Thinned or Released	415	200	461	1,076
Hectares Herbicided	342	558	70	970
Hectares Treated for Insect or Disease Infestation (not including Jack Pine budworm)	400	nil	nil	400

Forest Protection and Dutch Elm Disease

Jack Pine Budworm

The major defoliator of jack pine in Manitoba is the jack pine budworm. Populations of this insect rise to epidemic proportions rapidly and are also subject to sudden collapse. Outbreaks generally last two to four years. Topkill, growth loss and reduced vigour are the most common forms of damage. Tree mortality seems to occur when other stresses are involved.

The jack pine budworm caused severe defoliation of jack pine in the Thompson area both in 1984 and 1985. Decline and mortality continued to occur throughout 1986 and the 1987 growing seasons. A survey was carried out during the year to assess budworm damage in mature jack pine. Younger more vigorous stands were not surveyed due to their apparent recovery from the severe defoliation.

The potential volume loss due to budworm in the surveyed area was 15.5% of the total volume of jack pine available prior to the budworm damage. The results indicated dead and declining jack pine at 17.5%.

Throughout the year, jack pine budworm was found in a few locations in Manitoba. Moderate defoliation was observed only at Brereton and West Hawk lakes in Whiteshell Provincial Park. Egg mass surveys were carried out, and although the final results were not available, early samples predicted nil to light defoliation for 1988.

Spruce Budworm

Spruce Budworm infestations persisted along the Winnipeg River for the 13th consecutive season and into the Falcon Lake/West Hawk Lake areas of the Whiteshell Provincial Park for the third consecutive season. Moderate to severe defoliation occurred in these areas. Light defoliation occurred in Hecla Provincial Park.

Based on egg mass surveys predicting moderate and severe defoliation for 1987 in the Whiteshell Provincial Park (at Dorothy Lake and Falcon Lake) an aerial spray program was carried out. The bacterial insecticide Thuricide 48LV (Bacillus thuringiensis) was used.

Egg mass surveys to predict infestations for 1988 were conducted at Whiteshell Provincial Park, Hecla Provincial Park, Grindstone Provincial Recreation Park and the Lake St. George/Lake St. David area. Infestations in the Whiteshell were expected to continue in 1988.

Dwarf Mistletoe

Dwarf Mistletoe causes extensive damage in Manitoba reducing both the quantity and quality of merchantable timber. Two species of dwarf mistletoe occur in the province — one attacking jack pine and the other white spruce and black spruce.

A total of 60 permanent plots were established in Manitoba to monitor dwarf mistletoe infections and the effect of various operational sanitation treatments on the parasite. Of the 60, 40 are located in southern parts of the province and 20 are in the central region near Grand Rapids. These plots have already yielded over five million pieces of information that are now on computer files. A mapping system has been adapted from a program developed at the University of Manitoba to allow the mapping of individual trees in the permanent plots and integration of all collected information.

Two research projects funded by the Canada-Manitoba Forest Renewal Agreement are being delivered by the University of Manitoba Botany Department. One study delves into pollen retention and dispersal, while the other studies the behaviour of dwarf mistletoe infections in Manitoba jack pine stands to provide a conceptual understanding and data to develop a loss simulator model.

Armillaria Root Rot

Armillaria root rot continued to be a problem in some red pine plantations in eastern and southeastern Manitoba. The disease has been found in plantations ranging in age from 5 to 50 years. Monitoring of affected plots continued and an additional study was undertaken to determine the susceptibilities of red pine and jack pine and the determination of high risk root rot areas prior to planting.

White Pine Weevil

For the fourth consecutive year, sanitation pruning to control white pine weevil in white spruce plantations in the Interlake continued. In 1987, 1,961 infested white spruce trees were pruned over a 335 hectare area.

Detecting the white pine weevil was difficult during 1987 due to a late frost. An additional problem arose when weevils reinvaded previously attacked stems. As a consequence, all trees displaying old damage had to be re-examined for 1987 weevil attack.

Plantation Pest Survey

The summer of 1987 was the first year for the Plantation Pest Survey carried out jointly by the Canadian Forestry Service and Manitoba Natural Resources. The survey is intended to determine major plantation pests causing deformity and/or mortality in young stands.

The survey in 1987 was conducted on seven plantations of either red pine or jack pine, and covered 159 hectares, 1,464 trees, of which 89% were classified as vigorous. Results indicated that the jack pine stands had more problems than the red pine.

The 1987 season was a trial period for this new project and modifications in the survey method and sampling intensity were planned for the 1988 season.

Dutch Elm Disease

During the 1987 summer surveillance season, approximately 13,000 elms were examined in and around urban and rural municipalities. Of these, 1,133 were confirmed to have Dutch Elm Disease and 12,899 were classified as hazards, many of these probably dead as a result of Dutch Elm Disease (DED). This compares with the 2,948 confirmed DED trees the previous year and the additional 9,879 hazards.

Due to the large number of elms infected in wild stands throughout Manitoba, a particularly in eastern and central regions, control efforts were concentrated on elms in and around the 43 communities where cost-sharing agreements were in effect. Trees in the wild were not treated due to the impracticality of controlling the disease in those areas.

There were some 77 municipalities with trees infected by DED. Communities where the disease is a concern included centres such as Winnipeg, Brandon, Portage la Prairie, Morden, Neepawa, Selkirk, Steinbach and Winkler. Dauphin remained free of DED, however, the disease was found in the nearby rural municipality of Ste. Rose.

Although DED continues to increase in the wild stands, diseased elms in urban centres with control programs were comparably low. Less than one percent of Winnipeg's elms were diseased. In Brandon, less than two percent of the elms were infected. Most of these trees were found in the wild stands along the riverbanks where control measures are less effective. The City of Winnipeg reported over 1,800 samples taken this year, of which 1,645 were confirmed DED and an additional 6,585 marked as hazards (trees likely to contribute to the spread of DED).

The disease has continued to increase along most of southern Manitoba's rivers. Large increases in disease have occurred on the Red and Assiniboine Rivers around Winnipeg, along the Assiniboine to Portage la Prairie and west of Brandon as far as the St-Lazare area. The Whitemud River around Westbourne has shown a considerable increase in disease, as well as the eastern escarpment of Riding Mountain National Park. The smaller river and creek systems in south central b Manitoba also experienced more pockets of infection, endangering the shelterbelts in the areas around Winkler, Altona, Morden and Carman. The Souris River southwest of Brandon was surveyed by air and reported to be extensively infected right into the United States and back into Saskatchewan. The elm population does, however, extend only a few miles into Saskatchewan. It is expected that the disease will be extended into Saskatchewan via the Assiniboine River west of the St-Lazare area.

The community of Minnedosa which had one diseased tree in 1986 had only one affected tree again this year. Rivers which had one diseased elm last year was disease-free this year. Neepawa, which had three diseased trees in 1984, none in 1985 and 1986, had one this year. Communities such as Portage la Praire, Morden, Morris, Ste. Anne and Souris saw a considerable increase in the number of affected trees. Major decreases were observed in Brandon, Crystal City, Carman and Stonewall. These communities have shown favorable results from sanitation practices which have included pruning and basal spraying.

The first diseased tree in rural Manitoba this year was observed in Morden on May 26 and in the Winnipeg area about June 4. A generally early spring with relatively low infestations of cankerworms provided good conditions for sampling of diseased trees. Most identification, however, was done in July and the first week of August.

From November 1, 1986 to October 31, 1987, the Provincial Dutch Elm Disease sanitation crew removed approximately 9,000 elm trees. In addition, approximately 2,550 decadent elms were removed in the Brandon Buffer Zone and c 1,081 in the Winnipeg Buffer Zone (La Salle and Assiniboine River areas). These trees were removed under winter works projects from November 1986 to April, 1987.

This year marked the fourth year of the Elm Guard Watch program involving residents of both Winnipeg and rural communities. Elm Guard members are volunteers who regularly walk the streets of their area looking for early signs of Dutch Elm Disease. Receptions are held at the end of each season in their area to recognize their efforts.

The Forestry Initiatives

The Forestry Initiatives Program consists of both the Canada-Manitoba Forest Renewal Agreement and the Jobs Fund Sectoral Project in Forestry. The primary objective is to improve the level of forest renewal in Manitoba. Each component of the program has similar objectives, goals and detailed project areas. The "Jobs Fund" is the current provincial funding source for this effort.

Both the agreement and the sectoral project involve forest renewal, intensive forest management, applied research, technology transfer, opportunity identification and nursery development, and public information, evaluation and administration.

Canada-Manitoba Forest Renewal Agreement

Under this agreement, projects are implemented three ways. Some projects are carried out by the federal government, some exclusively by the provincial d government and some are cost-shared. Under the program funded entirely by the province, the cold storage facility at the Pineland Provincial Forest Nursery was completed, 6.8 million bareroot seedlings were shipped and 1.9 million seedlings were planted. The province also funded treatment of 128 hectares of jack pine in the Mitchell Lake area and 644 hectares in the Talbot Lake area for dwarf mistletoe. The contract with the University of Manitoba for the development of a loss simulator model for dwarf mistletoe continued and 314.5 hectares were treated with herbicide in the eastern and western regions. Manitoba also contributed to a national communications strategy focused on improving the awareness of the forest sector in the country. This was complemented by Manitoba hosting the Canadian Forest Communications Committee in Winnipeg in May of 1987. Public information activities also included the official opening of the Clearwater Nursery facilities in May and the tree improvement facilities at Pineland in June of 1987. The province continued to computerize the geographical information system and there are currently 424 map sheets in various stages of production. Projects and numbers listed in this section will also be reflected in previous subsections of this Forestry report.

The federal contribution under the agreement involved Abitibi Price and Manfor acting as delivery mechanisms for the program. A total of 3,812 hectares were surveyed, over 1,700,000 trees were planted, and 566 hectares were site prepared. In addition, 547 hectares of spacing was carried out while 431 hectares were treated with herbicides. A seed orchard for 20,000 jack pine seedlings was prepared and planted in the Interlake and a book entitled "Tree and Shrub Insects of the Prairie Provinces" was published. The federal component of the agreement also partially funded a tabloid called "The Forestry Leader" and was involved in exhibitions in 14 communities during the summer months.

The final component of the agreement involves cost-shared activities. Under this program, many research projects were carried out. This included evaluating the effects of aerial applications of glyphosate on both vegetation and aquatic ecosystems. The Demonstration Area Manual was produced and distributed, highlighting areas of significant importance to forest research in Manitoba's silvicultural field. Under the forest economics program, a number of time and motion studies were undertaken and a report, "Machine Productivity for Disk Trenchers, Drum Choppers and Bracke Scarifiers in Manitoba" was produced. In the new tree improvement facility at Pineland 27,000 seedlings were grown, while an additional 36,000 seedlings were grown for a mass selection seed orchard. A number of computer programs and instruction manuals were also developed, edited and tested for the branch.

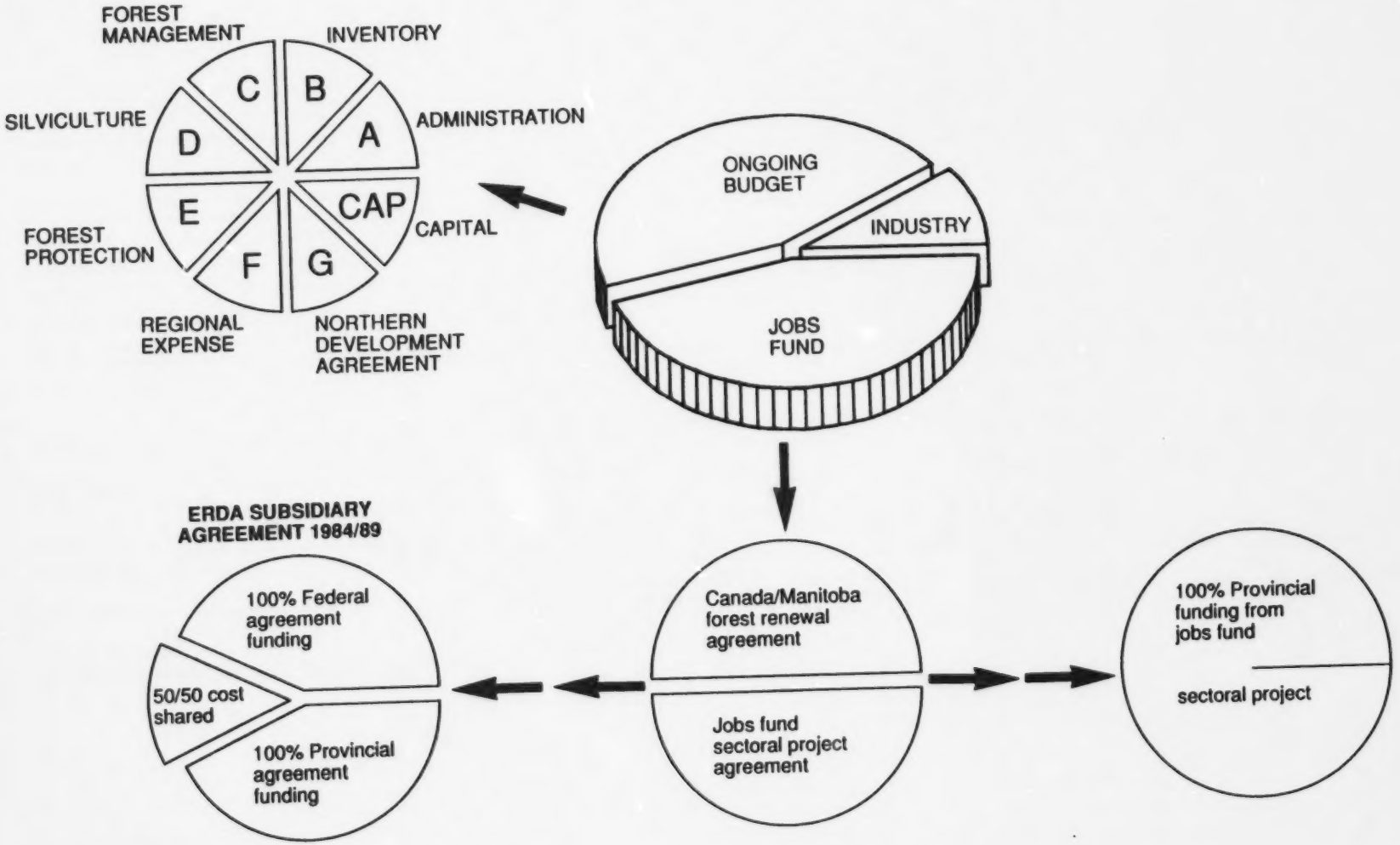
Jobs Fund Sectoral Project in Forestry

The sectoral project is a component of the program funded entirely by the province, managed and delivered in much the same fashion as the agreement. Under this program over 3,000,000 trees were planted in the eastern and western regions, and over 2,200 hectares were scarified in various regions for regeneration. The geographical information system being computerized under the agreement was complemented by this program where an additional 84 map sheets were completed. At the Pineland Provincial Forest Nursery, 1.4 million containerized seedlings were grown in 14 greenhouses and at Clearwater, an additional 1.6 million seedlings were prepared for the 1987 planting season. Under the public information component of the program six refrigerated vans were repaired and painted to be used for the transportation of the seedlings, a new scaler's manual was prepared and ballots for public involvement in selection of a provincial tree were prepared. In addition, six display panels for silviculture, posters for a Forest Week contest and an animated Smokey the Bear television commercial were also completed.

Summation by Program (000's)
March 31, 1988

Canada Manitoba Forest Renewal Agreement	100% Provincial Allotted	100% Provincial Expended	50/50 Allotted	50/50 Expended	Federal Allotted	Federal Expended
PROGRAM "A" Forest Renewal	$1,198.0	$1,195.5	—	—	$820.9	$819.9
PROGRAM "B" Intensive Forest Management	280.0	278.4	—	—	472.3	472.0
PROGRAM "C" Applied Research, Tech. Transfer, Opport. Ident & Nursery Develop	956.0	954.6	$700.0	$683.9	562.4	559.1
PROGRAM "D" Public Information, Evaluation and Administration	6.0	5.6	—	—	251.9	251.9
AGREEMENT TOTALS 1987/88	$2,440.0	$2,434.1	$700.0	$683.9	$2,107.5	$102.9
JOBS FUND SECTORAL PROJECT						
PROGRAM "A" Forest Renewal	$ 552.4	$ 552.6				
PROGRAM "B" Intensive Forest Mgmt.	2,204.3	2,164.8				
PROGRAM "C" Nursery Devleopment	708.6	714.3				
PROGRAM "D" Public Information	144.7	144.6				
SECTORAL TOTALS 1987/88	$3,610.0	$3,576.3				
GRAND TOTALS	$6,050.0	$6,010.4	$700.0	$683.9	$2,107.5	$2,102.9

Forestry Activity



MANITOBA FORESTRY BRANCH

NOTE: *The size of each segment does not necessarily reflect the size of financial commitment.*

Lands

This Branch administers Crown land in Manitoba under The Crown Lands Act; maintains a Crown lands register; negotiates outstanding treaty claims and land settlements with Indian bands and the federal Department of Indian and Northern Affairs; and administers the allocation of wild rice licences on Crown land under The Wild Rice Act.

Land Administration

During 1987-88 this section continued to circulate requests for the use of Crown land and administer the various contracts concerning land uses.

Crown Land Sales and Permanent Disposition

Orders-in-Council approved	79
Parcels of land approved for sale	456
Agricultural transfers	20
Residential transfers	63
Recreational transfers	59
Commercial/other transfers	24
Long-term agreements paid out and transferred	12
Conveyance of minerals	34

Revenue — Land Administration — Sales

Agricultural	$182,280.00
Residential	76,351.70
Recreational	223,105.00
Commercial/Other	34,115.50
TOTAL	$515,852.20

Crown Land Registry

The Crown Land Registry continued to provide a record of original dispositions of lands in Manitoba, as well as a record of all transactions related to Crown lands currently administered by the province. Information was provided daily for legal firms, the Land Titles Office, other departments and agencies of government, historical societies and the public.

The section continued to explore and implement new methods of disseminating information to the users of the system as well as enhancing the quality and availability of the registry records.

Wild Rice

The 1987 wild rice crop reached an all time record for Manitoba at 748,500 kilograms. All areas of the province experienced a good crop, while bumper crops were found on certain lakes that had not produced for the last four to five k years.

Wild rice development in northern Manitoba continued, with a strong increase in production, from 25,000 kilograms in 1985 to 125,000 kilograms in 1987. Organizations were being formed to support individual producers with experience, information and funding support. This development was supported by the Wild

Rice Program through informational workshops, lake assessment, test seeding and onsite extension services with licence holders.

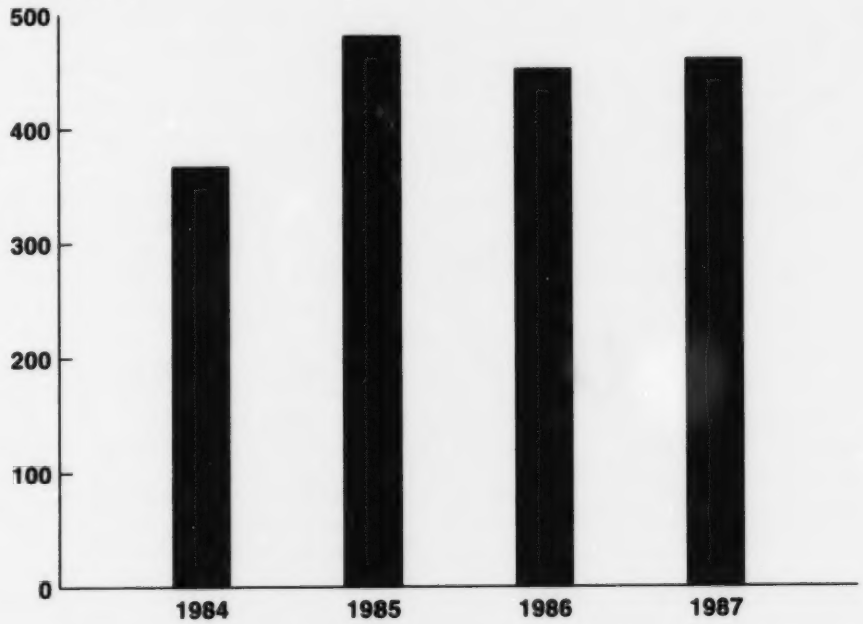
The test seeding program continued in 1987, which was intended to assist northern communities in generating an interest in producing wild rice. Potential lakes are selected, test seeded, checked for survival and are production seeded to provide a demonstration site where conditions are favorable.

The 1987 Whiteshell wild rice harvest program was planned and implemented with the support of an advisory committee, composed of native representation from the Southeast Resource Development Council, Interlake Tribal Council, Fort Alexander Band and the R.C.M.P. The program involved the designation of zones, with varying dates for hand harvesting and mechanical harvesters.

Wild Rice Harvest

	1985	1986	1987
Total Harvest (kilograms)	275,900	387,800	748,500
Lakeside Price (kilograms)	$2.31	$1.98	$1.25
Licences	446	424	437
Harvest Permits	48	26	45
Buyer's Permits	9	5	5

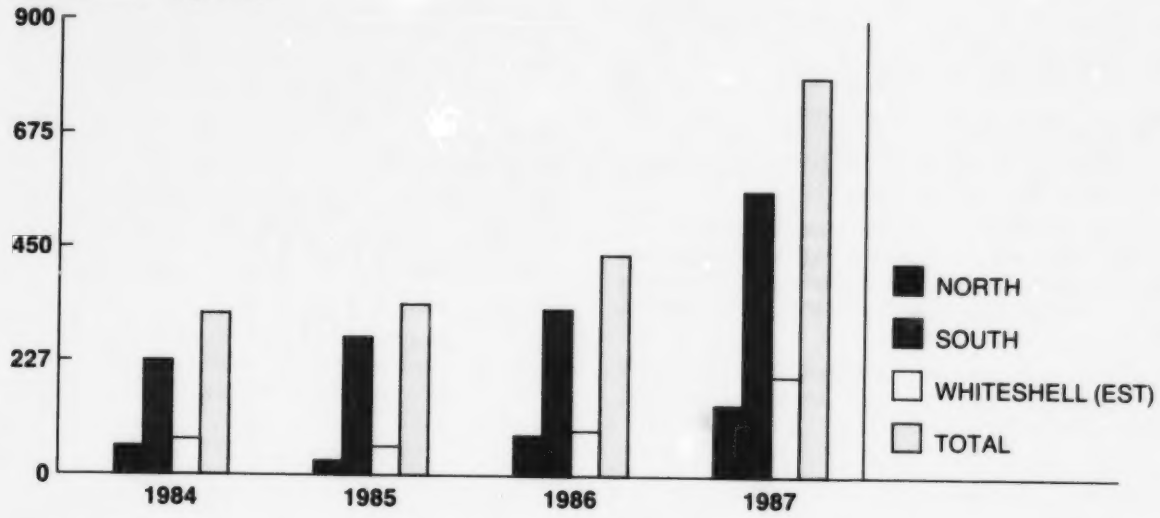
Wild Rice Licences
In Manitoba



Wild Rice Production

In Manitoba

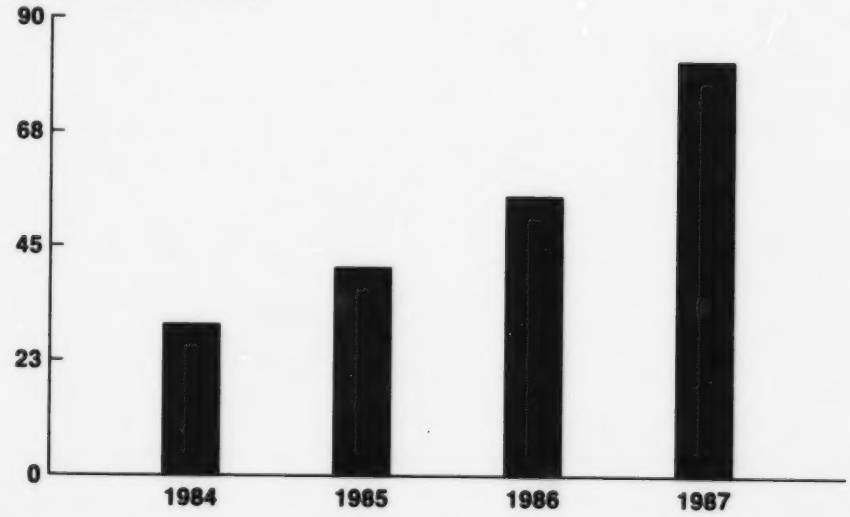
Thousands (kilograms)



Wild Rice Seeding

In Manitoba

Thousands (Kilograms)



Indian Land Claims

In accordance with established statutes, agreements and policy, the Indian Land Claims Section is responsible for the research, negotiation and implementation of land claims settlements in Manitoba.

Twenty-three Indian Bands have validated treaty land entitlement claims stemming from the original signing of the treaties, while another five are under review by the federal Office of Native Claims.

Reciprocal Privy Council Orders were received from Canada accepting provincial Crown land and designating Indian Reserves at Pauingassi, to be known as Pauingassi First Nation Indian Reserve, and at the Pas as an addition to I.R. #21I.

Negotiations have been initiated with the Indian Birch Band which has requested a portion of its treaty land entitlement totalling 2200 acres.

Negotiations continue with the Barren Lands Band for a land exchange at Brochet, the Nelson House Band for treaty entitlement at Nelson House, the York Factory Band for treaty entitlement in northeastern Manitoba, the Waasagomuch Band for treaty entitlement at Wasagamack, the Shamattawa Band for treaty entitlement in northeastern Manitoba, the Mathias Colomb Band for treaty entitlement at Hughes Lake, the Dakota Tipi Band for a land purchase for reserve at Portage la Prairie, The Pas Band for land exchanges at The Pas, and the Cross Lake, Nelson House, Norway House, Split Lake and York Factory Bands for compensation lands under the terms of the Northern Flood Agreement.

Indian Land Claims-Summary Table

Band	Acreage	P.C. Order	O-in-C	Surveyed	Under Negotiation
Little Grand Rapids	343.6	X			
The Pas	377.42	X			
Chemawawin	11,057.18		X		
Gods River	344.18		X		
War Lake	204.86		X		
Waterhen	263.57		X		
York Factory	2,390		X		
Barren Lands	5.8			X	
Nelson House	6.0			X	
Mathias Colomb	5,750			X	
The Pas	126.18				X
Cross Lake	31,422				X
Dakota Tipi	57				X
Indian Birch	2,200				X
Nelson House	3,240				X
Norway House	12,626				X
Shamattawa	8,100				X
Split Lake	6,570				X
Wasagamack	6				X
York Factory	12,976				X

Special Projects and Appraisals

In 1987-88, as a result of negotiations with municipalities concerning the capital upgrading required before the municipality would assume responsibility for providing services to existing Crown subdivisions, three further recreational/residential subdivisions were upgraded to municipal standards. This was an ongoing project whereby provincial liability for provision of services is reduced and the lots can be made available for sale to the current lot holder. A total of 54 lots were made available for sale in the areas of Wekusko Lake (Anderson Bay), Waterhen and Cranberry Portage (First Cranberry Lake).

Approximately 100 appraisals involving agricultural Crown lands, local government district lands and a variety of residential/recreational/commercial lots were completed throughout the year.

Negotiations continued involving the exchange of land in various local government districts. An exchange was completed with the local government district of Fisher involving 20 parcels of land. Approximately 15 parcels were returned directly to the local government districts and 15 parcels were sold to agricultural lessees at the request of the local government district.

An agreement to transfer 280 miles of abandoned railway right-of-way to the province was reached following negotiations between the province and Canadian Pacific Railway. The lands involved in the 12 abandoned lines were reviewed to determine any provincial requirements. Rights-of-way not required by the province will be offered to adjacent municipalities and landowners.

Parks

This branch administers a parks system that provides for the conservation and management of fauna and flora, and the preservation of ecological, cultural, historical and other resources therein; develops facilities and services to meet the recreational needs of the public, and enables Manitobans and visitors to Manitoba to enjoy outdoor recreation; plans and operates park visitor and special user programs; and manages recreational businesses in parks.

Planning

Systems and Management Planning

The Hecla-Grindstone Provincial Parks Management Plan was approved in 1987-88. A summary of public input and recommendations was submitted to the Minister in August 1987, and following Cabinet approval the Summary of Public Input and Revisions to the Draft Management Plan was distributed in October 1987. The final Management Plan was then prepared and approved for publication in March 1988.

In 1987, in co-operation with the Natural Resources Institute of the University of Manitoba, a study was begun to evaluate the suitability of the Steeprock River area for a wilderness park. This area was identified for study in 1985 in the Systems Plan for Manitoba's Provincial Parks.

A brochure was prepared on the proposed interpretation of Native culture in Whiteshell Provincial Park as identified in the 1983 Whiteshell Master Plan. Consultations were begun with representatives of the Native community regarding the proposed facility.

The Parks Branch conducted several projects relating to the Canadian Heritage Rivers System. The CHRS Board formally accepted the nomination of the Seal River in June 1987 and subsequently approved initial funding for the preparation of a management plan for the Seal River. A 6-week field study of the historic Hayes River was conducted in the summer of 1987, and the formal background report was completed in December 1987.

The Parks Branch hosted a Federal-Provincial Parks Council Wilderness Workshop in Hecla Provincial Park in February 1988.

Natural Resource Management

Studies on woodland caribou in and around Atikaki Provincial Wilderness Park and elk habitat improvement in Duck Mountain Provincial Park were continued with several agencies in 1987-88. A brochure on moose management in Turtle Mountain Provincial Park was prepared in co-operation with the Wildlife Branch.

A creel census was conducted in Nopiming Provincial Park and a fisheries enhancement project was carried out in Two Mile Lake, Duck Mountain Provincial Park.

A water management plan for Whiteshell Provincial Park was prepared to guide seasonal water-level changes. This plan priorizes and reconciles conflicts regarding fisheries, wild rice, wildlife, water management and recreational users on the basis of their input and joint discussions.

The tallgrass prairie restoration project at Beaudry Provincial Heritage Park was continued in 1987-88. Seeds were collected by hand from representative areas in the summer. The mechanical harvester for grass seed developed in 198687 was successfully field tested, yielding seed of better quality and greater quantity than from hand collection. Two test plots were planted in 1987: 17 acres in late spring using the seed collected in 1986, and 24 acres in October using the seed collected in 1987. Seed and information were exchanged with an individual involved in a separate prairie restoration project at Bluestem Nature Park, along Omand's Creek in Winnipeg. The Parks Branch formally supported his applications for funding a co-operative seed-collection project for Beaudry Provincial Heritage Park, scheduled to begin in 1988.

A public information program to determine the final location of a sewage lagoon in Clearwater Lake Provincial Park was begun in the summer of 1987. The first of a series of newsletters was distributed in October, 1987 and public meetings/drop-in sessions were held on November 9th and 10th in The Pas. Soils on the preferred site were sampled and analyzed in the lab over the winter. Further newsletters and public consultations were planned for 1988.

Site Planning and Design

Designs were prepared for campground redevelopment and expansion and upgrading of lake access, staging areas, trail systems, recreation areas, playgrounds and access at numerous sites. These projects included parking lot improvements at the Grand Beach campground; boat-launching facilities at Gyles Lake in Grass River Provincial Park; the Seagrim Lake canoe route in Nopiming Provincial Park; hiking, cross-country skiing, horseback riding and/or snowmobile trails at Spruce Woods Provincial Heritage Park, and the Gull Harbour area of Hecla Provincial Park; the Wellman Lake games area in Duck Mountain Provincial Park; a new shower building with improved access at Big Whiteshell Lake; and a thematic playground for Pinawa Dam Provincial Heritage Park.

Design assistance was provided to other agencies for a variety of projects. These included the Kirkella Tourist Reception Centre at the Saskatchewan border for Manitoba Business Development and Tourism, the

Waterhen Wood Bison and the Narcisse Wildlife Management Area projects for the Wildlife Branch; the Minnedosa Wayside Park for Manitoba Highways and Transportation; ongoing work on the Clearwater Forest Centre for the Manitoba Forestry Association; and docking space for commercial fishermen at Winnipeg Beach in conjunction with the federal Smallcraft Harbours Agency. In co-operation with user groups, improved trails were designed for Grindstone and Camp Morton Provincial Recreation Parks.

A major effort in 1987-88 involved participation in the assessment of the "Go World Class" tourism projects in Hecla, Grand Beach, Winnipeg Beach and Duck Mountain Provincial Parks. Preliminary assessments and design guidelines were prepared for the Hecla and Grand Beach projects. These projects will be tendered for private sector initiatives in 1988 and evaluation of the other two projects will also proceed.

Program Management

Vacation Home Lot Program

Management services were provided to 5,722 vacation home lotholders consisting of 5,344 on Crown land and 378 on private land in provincial parks. Building plans for 620 applicants were reviewed and 136 21-year leases were issued. The 1986 regulation changes for water quality improvements and building guidelines resulted in the installation of 190 holding tanks in 1987-88. There were only 187 installed in the previous 10 years in Whiteshell Provincial Park. As well, 379 building permits were issued for lot development throughout the park system.

There was major emphasis on the development of permanent residency policy, private land service fees, water quality improvements and the new building guidelines. Consultations were carried out with the Long Lake Cottagers Association, Wallace Lake Cottagers Association, Whiteshell District Association, Landowners Association in Provincial Parks and Grindstone Cottagers Association as well as with the Singush Lake Cottagers Association. Variances to the building guidelines were dealt with through the Variance Committee process.

The forest fire in May 1987 destroyed 54 cottages at Wallace Lake, the Wallace Lake lodge and most of the campground. The campground was closed for transient camping but seasonal camping was permitted. Thirty-four lotholders were issued Building Permits for rebuilding, with all but two of them expected to rebuild.

Legislation

Legislation prepared for the branch included new park fees, MR 190/87; reenactments of MR 199/74, 239/80, 55/85, 63/80, 56/80, 11/80; and Use of Vehicles in Spruce Woods Provincial Park MR 373/87.

Southwestern Region (South)

Additional works were carried out at Spirit Sands in Spruce Woods Provincial Park and numerous maintenance-oriented projects throughout the region highlighted the 1987-88 program.

New initiatives in 1987-88 included the construction of a small shower module unit at the Adam Lake campground.

Southeastern Region (South)

Major construction included new washroom (non-modern) facilities at St. Ambroise Provincial Recreation Park, repairs and upgrading of the sewer and water systems at Portage Spillway, Norquay Provincial Recreation Park and Moose Lake Provincial Recreation Parks, and road and new property development at St. Malo Provincial Recreation Park. Mowing and service equipment were purchased for the region. Other projects included erosion control at St. Ambroise, which prevented the breaching of the main road during a severe summer storm, and replacement with polyvinyl chloride pipe of some sewer lines subject to root problems at St. Malo z Provincial Recreation Park. Stephenfield Provincial Recreation Park was transferred to the Southwestern Region. Work here included silviculture, leafy spurge control, and extensive road-dust control.

Northwestern Region (North)

Boat-launching ramps and docks were completed in several areas. Major improvements were made at Gyles Lake including campsites and road networks. Backcountry site clean-up and signing continued. Park furniture replacement and small equipment replacement were purchased for the region. Extra emergency items included well and pump replacement at Bakers Narrows and heating system for the lodge which has just been sold.

Northeastern Region (North)

Most of the work in the Northeastern Region focused on Paint Lake Provincial Recreation Park where campsites were upgraded, the group-use area was landscaped, the water system improved, and park furniture and equipment replaced. Docks and garbage dumps were upgraded. Road gravel was purchased and a fishing access site was upgraded.

Interlake Region

Additional site electrification at Gull Harbour campground, walking trail development and signing, golf course pedestrian walks and silviculture were the main thrusts in the area. At Winnipeg Beach Provincial Recreation Park realignment of some walks, washroom renovation, marina repair and dust control were undertaken, while at Camp Morton Provincial Recreation Park washroom and cottage upgrading, landscaping and stack-log building repair were completed. Washroom and beach improvements were carried out at Devils Lake and Watchorn Provincial Recreation Park, and air conditioning was installed in Kennedy House along the Red River Road. Park furniture and small equipment were replaced and small repairs made to the Moonlighter Restaurant building. Signing was improved at the Visitor Centre at Gull Harbour. The fish station work continued and the tower was completed. Major new initiatives in the Interlake in 1987-88 included major road works and the Hecla marina project.

Whiteshell Region

The 1987-88 Park Development Program consisted of major repairs to the Falcon Lake sewer and water system, replacement of electrical services in Caddy Lake campground, building repairs to the Falcon Beach shopping centre, and other projects of upgrading and maintenance, including landscaping and small equipment replacement. The vacation home lot program for 1987/88 included subdivision road gravel, dust abatement and completion of the McKenzie Beach boathouse area improvements. Major new initiatives included sewer and water infrastructure improvements in the Rennie District and the construction of a washroom/shower building at Big Whiteshell campground.

Western Region (South)

The 1987-88 program in the Western Region included work on the Asessippi Provincial Park marina, Manipogo Provincial Recreation Park sewer line renovation, equipment replacement, and repairs to buildings and structures. Elk habitat improvement work was also carried out.

Western Region (North)

Major work carried out in the 1987-88 program included trails and signing, and dock repairs at Childs Lake. At Wellman Lake work was begun on a large asphalted area to accommodate basketball, tennis and other games. Completion was expected by the summer of 1988. Emergency repairs were carried out at the Duck Mountain trailer dump station. The vacation home lot program included gravelling of roads in cottaging areas at Childs, East Blue, Singush and Wellman Lakes. Trails, dock repairs and a recreation site at Wellman Lake were undertaken.

Eastern Region (North)

Backcountry clean-up, road improvements and washroom facility upgrading were program goals in the Lac du Bonnet District. Additions were made to the radio telephone units for park patrol and the Beresford Lake campground operation. Due to the Wallace Lake fire, tree planting had to be curtailed at various wayside locations.

Eastern Region (South)

Work to maintain the established design criteria was carried out in the Birds Hill District and included building service and repair, conversion of beach front walks from wood to concrete, asphalt repairs, and small equipment replacement. The 1987-88 vacation home lot program included sewer system improvements in the Grand Beach cottage area. The major new initiatives in Nopiming Provincial Park included a parking lot and trail construction at Seagrim Lake, and a viewing deck at Tulabi Falls there were also improvements at Pinawa Dam Heritage Park.

Cost[1]/Revenue[2] Performance by Service

Item	Number	Cost[3]	Revenue ($)	Revenue/Cost(%)
Golf Courses[4]	1	206,100	335,214	763
Campgrounds	99[5]	2,338,987	1,604,010	69
Cottages				
Service Fees —				
Crown lots	5,440	896,200	827,701[6]	97
Private lots	410	n/a	39,246	
Development Fees		n/a	29,833	
Assignment Fees		n/a	3,112	
Entrance Gates	14	208,800	838,596	403
Vacation Cabins	34	91,061	83,205[7]	91
Commercial Concessions	150	n/a	366,890	n/a
Games Areas and Ski Tow[8]		n/a	83,081	n/a
Miscellaneous		n/a	62,004	n/a
Non-revenue Areas		6,041,212	n/a	n/a
Total		11,367,200[9]	4,272,892	38%[10]

[1]Based on maintenance costs only.
[2]Increases were approved for all items.
[3]Based on a 2% cost increase.
[4]Falcon Lake only.
[5]Camping fees collected at 70 campgrounds.
[6]Includes revenue for snowplowing. Does not include land rental revenue.
[7]Revenue for 1986/87 Annual Report was $71,537 not $91,537.
[8]Includes Falcon Lake and Springhill Winter Park.
[9]Cost for 1986/87 was $11,123,400 not $11,822,847.
[10]Revenue/Cost in 1986/87 was 45% for 49%. In 1987/88 Revenue/Cost does not include cottage land rental. If it did, revenue cost would be 48%.

Cost/Revenue Performance by Park

Major Parks	Actual Cost[1] 1987/88 ($000's)	Actual Revenue[2] 1987/88 (All Sources) ($000's)	Revenue/Cost Percentage
Asessippi Provincial Park	226.5	37.7	17
Beaudry Provincial Park	49.5	16.4	33
Birds Hill Provincial Park	1,233.2	379.8	31
Clearwater Lake Provincial Park[3]	345.0	56.3	16
Duck Mountain Provincial Park[4]	258.0	131.9	51
Grand Beach Provincial Park	796.1	437.0	55[7]
Grass River Provincial Park[5]	93.6	35.2	38
Hecla Provincial Park	1,005.9	254.9	25[8]
Nopiming Provincial Park[6]	294.3	99.9	34
Spruce Woods Provincial Park	656.3	102.5	16
Turtle Mountain Provincial Park	405.2	30.7	8
Whiteshell Provincial Park	2,680.2	1,736.3	65

[1]Based on maintenance costs only.
[2]Does not include cottage land rental revenue.
[3]The Pas District.
[4]Swan River, Roblin and Garland Districts.
[5]Cranberry Portage District only.
[6]Lac du Bonnet and Bissett Districts.
[7]Revenue/Cost in 1986/87 was 47% not 37%.
[8]Revenue from Hecla golf course not included.

Capital Expenditures

($000's)

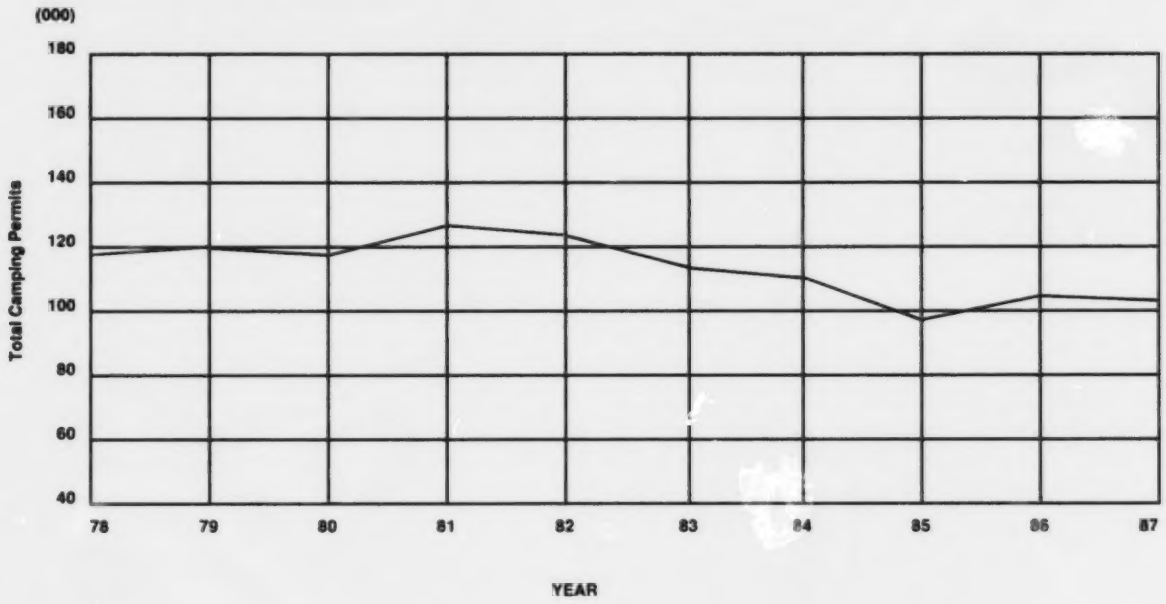
Major Parks	1984-85	1985-86	1986-87	1987-88
Asessippi Provincial Park	19.6	44.2	87.9	37.0
Beaudry Provincial Park	38.4	47.6	20.0	15.0
Birds Hill Provincial Park	104.8	99.0	90.0	138.5
Clearwater Lake Provincial Park	19.0	60.2	69.0	31.4
Duck Mountain Provincial Park	51.0	53.0	31.0	215.7
Grand Beach Provincial Park	101.7	80.0	48.7	202.0
Grass River Provincial Park	20.0	18.0	15.0	46.7
Hecla Provincial Park	638.7	829.7	364.0	211.5
Nopiming Provincial Park	48.4	80.1	15.5	51.9
Spruce Woods Provincial Heritage Park	111.6	130.9	79.8	33.6
Turtle Mountain Provincial Park	60.6	48.6	48.2	33.3
Whiteshell Provincial Park	542.4	554.0	431.8	870.4

Summary of Park Revenue

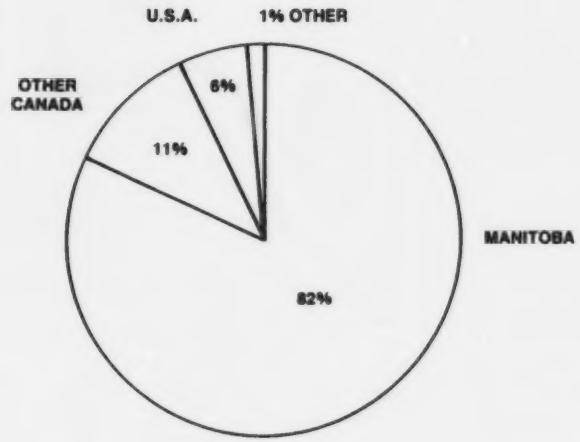
(April 1st, 1987 to March 31st, 1988)

Park Use	Total Revenue 1986-87	Total Revenue 1987-88
Park Fees:		
Camping	1,408,614	1,596,560
Park Entrance (Daily)	294,288	420,669
Park Entrance (Seasonal)	301,650	416,352
Park Entrance (Bus)	1,340	1,575
Sub-Total	$2,005,892	$2,435,156
Games Areas:		
Golf Course (Hecla Island)	185,750	contract
Golf Course (Falcon Lake)	252,731	335,239
Tennis Court (Falcon Lake)	5,646	5,657
Miniature Golf (Falcon Lake)	28,232	31,964
Lawn Bowling (Falcon Lake)	3,961	3,045
Marina (Gull Harbour)	2,676	1,903
Ski Tow (Birds Hill)	48,588	38,330
Ski Tow (Falcon Lake)	9,204	3,258
Other Games Area Revenue	981	827
Sub-Total	$537,769	$420,222
Rentals/Leases:		
Cabin Rental (Camp Morton)	26,563	32,749
Cabin Rental (Hecla)	33,052	37,426
Cabin Rental (Ironwood Point)	11,922	13,030
Sub-Total	$71,537	$83,205
Permits/Leases:		
Summer Homes	1,823,507	2,006,937
Commercial	165,045	366,890
Lot Development Fee	154,261	29,833
Land Permits/Leases	39,679	16,388
Service Levy (Private Lots)	37,786	39,246
Miscellaneous	9,878	9,882
Sub-Total	$2,230,156	$2,469,176
Other:		
Camping (Winter Storage)	5,925	7,450
Laundry Facilities	1,322	1,512
Miscellaneous	60,500	23,312
Sub-total	$67,747	$32,274

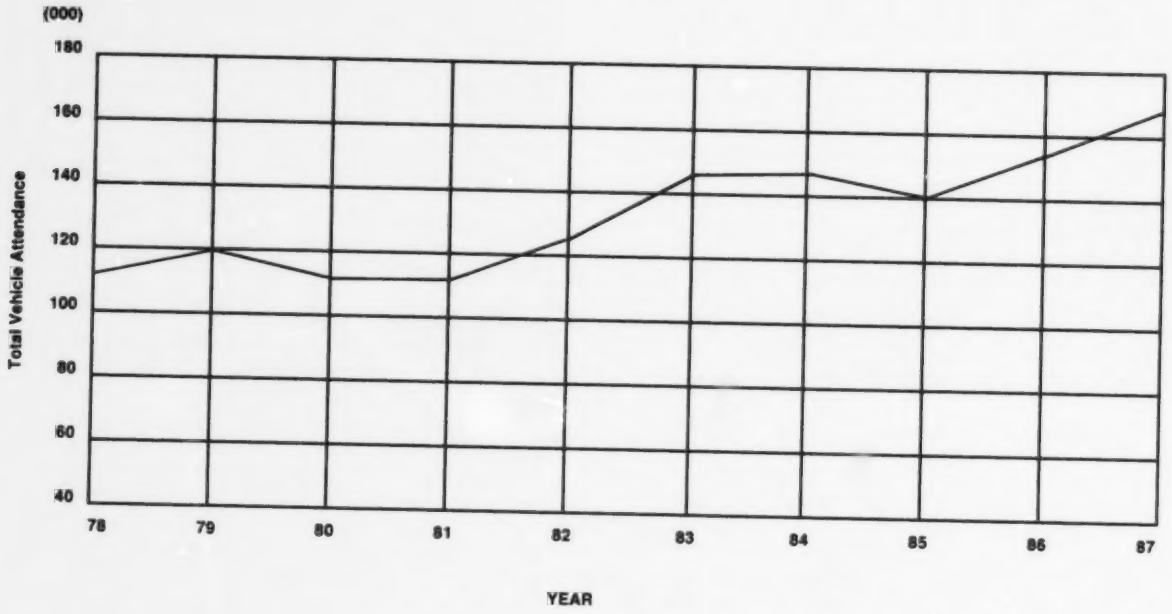
Camping Permits Issued



Origin of Permit Holders, 1987



Vehicle Attendance



Park Entrance Permits

	Daily Permits		Daily Bus Permits		Seasonal Permits			
Year	Number	Revenue	Number	Revenue	Number	Revenue	Total Permits	Total Permits
1984	163,163	$326,326.00	95	$1,030.00	29,888	$298,880.00	193,146	$626,236.00
1985	122,804	$245,608.00	98	$1,100.00	28,768	$287,680.00	151,670	$534,388.00
1986	147,140	$294,288.00	114*	$1,340.00	30,165	$301,650.00	177,419	$597,278.00
1987	140,224	$420,669.00	91	$1,575.00	34,696	$416,352.00	175,011	$838,596.00

**Includes seasonal bus permits.*

Visitor Services

Co-operative Activities

The campground host program piloted in 1986 was expanded in 1987 to include five camping areas: Birds Hill, Hecla, Mantagao, Turtle Mountain (Max Lake) and Grass River (Gyles Park). The program was particularly successful in providing extra information to park visitors and involving the community in parks services. Nine volunteer hosts personally contacted more than 2,500 park visitors.

Two co-operating associations, The Friends of the Whiteshell Inc. and The Friends of Spruce Woods Inc., assisted with visitor programs in those two parks. Both groups also planned to open bookshops for visitors.

Co-operative Projects

Co-operative projects completed under specific agreements were the cross-country ski trails at Camp Morton Provincial Recreation Park by the Gimli Ski Club; the hiking trails in Grindstone Provincial Recreation Park by the Grindstone Cottage Owners Association; the library in Nopiming Provincial Park by Ausgold Recovery Systems Ltd.; and the restoration of the Kennedy family photographs. The total value of these contributions was $19.0.

Co-operative projects completed without agreements were the addition to the ski chalet in Clearwater Lake Provincial Park by The Pas Cross-country Ski Club, and the provision of a seasonal Visitor Services Attendant in Paint Lake Provincial Recreation Park by the Thompson Lions/Lioness Club. The total value of these contributions was $24.0.

The total value of continuing projects with agreements in 1987-88 is $20.2. These projects are the Peace Education Materials and Trail at Birds Hill Provincial Park by the Manitoba Educators for Social Responsibility; a donation for Grand Beach Provincial Park from New York Seltzer; the Spirit Rock Trail at Grand Beach Provincial Park by the Grand Beach Sun Run; prairie seed collecting for Beaudry Provincial Heritage Park by the Elm Creek Girl Guides; and a drinking fountain at Birds Hill Provincial Park.

Interpretation

A first for the Parks Branch was a joint venture with Manitoba Education to produce a three-cassette "Edukit" video on provincial parks. Also new in 198788 were a slide show on Atikaki Wilderness Park, a photographic display showing construction of the locks at Lockport, and a kiosk detailing the natural history of trout at Clearwater Lake Provincial Park. A second new kiosk, "Spirit Sands," described the significance to early Natives of the Bald Head Hills in Spruce Woods Provincial Heritage Park.

Implementation of a three-year amphitheatre upgrading plan began with extensive improvements at Spruce Woods Provincial Heritage Park and Birds Hill Provincial Park. During normal reprinting two more interpretive brochures were redesigned to the common parks "family look".

Promotion

The Visitor Services Section continued to promote routine programs such as diala-site, family vacation cabins, ski hills, visitor centres and visitor services programs through paid advertisements. Many park programs and facilities received extensive complimentary promotion through existing and newly established contacts with local media. Highlights included a joint effort with the department's media and community relations staff and MTN T.V. and a CBC Information Radio summer series on provincial parks. Continued liaison with Travel Manitoba resulted in provincial parks being given high priority in their radio, television and print promotions. The Parks Branch handled well over 16,000 public information inquiries at its head office alone. The branch was also represented at the Travel '88 and Vacation Mart trade shows.

Commercial Operations

The commercial and non-profit program continued to administer the operating agreements of some 150 private sector businesses and 75 non-profit groups operating in provincial parks throughout the province. These businesses include lodges, major resort complexes, ski facilities, golf courses, marinas, food concessions and riding stables.

Public tenders were concluded for the provision of beach concession services at St. Ambroise, Lynch Point and Rainbow Beach Provincial Recreation Parks, a grocery store/food service at Spruce Woods Provincial Heritage Park and a sales outlet at the Hecla Dockside Fishing Station.

As well, a major resort and a parcel of land at Bakers Narrows were sold through public tender.

Cultural Resources

Work continued on a variety of projects during the year including research, design, drawings and analyses for structures in St. Norbert Provincial Heritage Park and Hecla Provincial Heritage Park. Guidelines were developed for the cultural heritage zone in Hecla Provincial Heritage Park to establish the direction for the preservation, management and use of historical structures and enhancement of the cultural landscape of Hecla.

Work also continued on the establishment of a system plan for cultural resources in parks and on the completion of an initial inventory of these resources.

In early March, the Parks Branch along with the Historic Resources Branch of Manitoba Culture, Heritage and Recreation and the Canadian Parks Service sponsored a workshop involving historians and members of the general public. The theme was the future of cultural resources in Manitoba's provincial parks. This workshop was an initial step in the development of a preservation and promotion strategy for cultural assets such as buildings and historic sites in provincial parks.

Camping Programs

Changes in the availability of seasonal camping reflected changing demand. Sites were added at Campers Cove, Nutimik Lake and Stephenfield Provincial Recreation Park; seasonal camping was offered for the first time at Sasagiu Rapids. The program was discontinued at Lundar Beach Provincial Recreation Park and Opapiskaw, at the latter due to increased demand for transient camping. Increases in seasonal fees were believed responsible for fewer applications at Duck Mountain Provincial Park, Wekusko Falls Provincial Wayside Park and Porcupine Hills.

Permanent Trailer Village

Permits for 177 trailer village sites at Dorothy, West Hawk and Falcon Lakes were renewed. Seven sites in all were relinquished in 1988, and these reverted to seasonal camping. Both in 1987 and 1988 the closing date for renewal of permits was advanced by at least a month, and registered lotholders were permitted to renew their permits during the preceding winter.

Regional Services

This branch enforces resource Acts and Regulations; delivers resource management programs to the public and other government agencies; operates and maintains provincial parks; manages the forest fire prevention, detection and suppression programs.

Regional Activities

Northeastern Region

Fisheries
A total of 84 lakes in the region were commercially fished by 531 individuals during the 1987 summer season. This compares with 85 lakes fished by 504 commercial fishermen during the 1986 summer season. Production of pike and pickerel was up slightly, while whitefish production showed a decrease.

There were a total of 16 licences issued on four active sturgeon fisheries, with a total of 3,500 kg. of sturgeon produced during the 1987 summer season.

During the 1987-88 winter season, there were 75 lakes fished by 170 commercial fishermen. The increase in the number of lakes fished was a result of an increase in demand for northern pike.

General Permit fishing for personal use continued on lakes adjacent to most remote communities.

A slight increase in sportfishing was evident during the past year.

Forestry
Manfor continued to expand forestry operations within the Wabowden and Thompson areas. Major road development and construction was undertaken in the Sipiwesk, Joey Lake and Johnson areas.

Forestry renewal activities were continued by Manfor in the Wabowden and Joey Lake areas.

Private timber allocation holders and community based operations were active during the year.

The demand for personal and re-sale fuelwood timber permits was high and several designated cutting areas were established.

Parks

Better weather than the previous year resulted in an increase in use of the park system in the Thompson and Wabowden areas.

The recreation facilities at Paint Lake that were started as a co-operative development project during Parks' 25th Anniversary Celebration were completed.

Fire Management
An extremely early spring resulted in the fire season starting in April. There were a total of 183 fires in the region, of which 133 were actioned. There was a loss of 32,000 hectares of forest from the 133 fires actioned. Total loss of actioned and non-actioned fires in the region was 131,000 hectares.

The Paint Lake helitac base was equipped with two 500-D helicopters in 1987 as compared to one Bell 204 in 1986. This experiment proved successful and will be continued in 1988.

Wildlife
A large movement of barren ground caribou into the Churchill and South Indian Lake areas took place, with animals remaining in the South Knife Lake and South Indian Lake areas most of the winter.

The 1987 moose season saw an average number of moose taken. An aerial moose census in the South Indian Lake and Pukatawagan areas was completed, indicating a good population of animals in some areas.

An increase in upland game bird numbers resulted in fair to good hunter success, especially for ruffed grouse.

Fair to good success was experienced by goose hunters along the Hudson Bay Coast.

The overall number of complaints regarding wolves in and around communities was generally down, but still persisted in the Wabowden area. Trappers generally did well with prices good and production about average.

The 1987 Polar Bear Alert Program was initiated in mid August with the placement of additional staff at Churchill and was wrapped up by mid November. There were a total of 99 occurrences actioned with the highest number (26) being in August. Thirty bears were captured and all were held in a holding compound for various lengths of time. Ten of the bears were flown north and the remainder released locally after freeze-up.

Five "Polar Bear Safety Awareness" courses were presented to various groups in Churchill and were well received.

A questionnaire circulated in Churchill has again indicated positive support for the Polar Bear Alert Program.

Enforcement
The Northeast Region continued to direct its main enforcement effort toward remote activities such as angling and hunting. Special emphasis was placed on remote commercial fishing operations. The number of District Occurrence Reports was about normal, with 440 being received. The number of enforcement actions were up somewhat with 112 charges and 67 warnings being processed.

An effort to deal with spring migratory bird hunting in the Nelson River area was continued. A very early break-up reduced the hunting pressure as birds moved north earlier than usual.

As a result of large numbers of barren ground caribou moving into the accessible area of South Indian Lake and the Tadoule Lake winter road, extra enforcement effort was directed towards this area in January, February, and March.

A special enforcement initiative was put in place on the Weir River during September to protect special natural brook trout spawning areas.

Special Projects
There was a marked increase in mineral exploration with line cutting and drilling operations taking place throughout the region, including north of the Seal River in the Great Island area.

New mines were in initial stages of development in the Farley Lake area south of Lynn Lake, and in the Island Lake area.

Wild Rice experimentation continued throughout the region with a number of new areas seeded.

Northwest Region

Fisheries
Summer commercial fishing production was down somewhat because of low water levels. Winter production was down, but recovered late in the season.

The management agreement with the people of Sherridon/Cold Lake appeared to be working well and slot limits on Kississing Lake proved a success. A management agreement with the user groups of Rocky Lake was signed and a reduced walleye limit agreed upon and legislated.

A management agreement for Cormorant Lake was in the advanced discussion stages with possible signing next year.

Parks
Major reconstruction of the highly popular Gyles Lake Campground in Grass River Provincial Park was carried out during the summer and fall seasons. Improvements to boat launch and parking facilities was also carried out at First Cranberry Lake and Wekusko Park.

A joint venture between The Pas Cross Country Ski Club and the department took place, involving a large extension to the existing chalet and recreation area at Clearwater Lake Provincial Park.

Bakers Narrows Lodge was advertised for sale as a complete package, including cabins and associated facilities. Two Flin Flon residents were announced as the successful bidders. It is their intention to have the business open to the public by early summer of 1988.

At an on-site public ceremony, the campground at Cormorant Lake was renamed the "Simon Nabess Wayside Park", in honour of this local resident's longtime association with the park and area.

Wildlife
The Moose Management Agreement between Manitoba Natural Resources and various user groups including The Pas, Moose Lake and Easterville Indian Bands, The Pas Wildlife Association, and Cormorant and Moose Lake Community Councils continued to be a success. Modest improvement in moose populations were evident in the agreement area. A wolf monitoring program was continued and for the first time a prescribed burn for habitat improvement was carried out in early May on approximately 1,000 acres of habitat.

A joint Natural Resources/Ducks Unlimited waterfowl feeding station was constructed and maintained in the Saskeram Wildlife Management Area to alleviate waterfowl depredation in the farming areas of the Carrot River Valley.

Enforcement
The region continued to direct its main enforcement effort at angling and remote area hunting. A total of 150 violations were encountered, resulting in 90 prosecutions and 60 warnings.

Forestry
Natural Resource Officers continued to monitor all private timber operations, as well as the Manfor cutting operations and road building programs. Fuel cutting operations appear to have leveled off slightly.

Manfor and contractors in their employ harvested approximately 725,000 cu. metres of softwood. Approximately 3.8 million container stock were produced at Clearwater Forest Nursery for planting by Manfor and the Forestry Branch.

Right-of-ways were cleared and a large quantity of rock and gravel was produced for construction of new timber access roads into the Limestone Point Lake area east of Sherridon. Roads and bridges were to be constructed in the summer of 1988.

Fire Management
There were 69 fires in the region, which burned a total of 28,282 hectares of forest. The Wekusko helitac base continued to be the centre for initial attack for fires in the region.

Western Region

Fisheries
Lake Winnipegosis fishermen agreed to close the fall commercial fishery in 1987 for the second year of a planned three year period. Walleye stocks appeared to be on the increase as winter fishermen recorded the highest walleye production since 1964.

A private organization called Swan Valley Sport Fishing Enhancement, Inc. held a first annual fundraising banquet in Swan River which raised close to $7,000.00. Funds will be used to improve local sport fisheries.

Sport and commercial fishermen on Dauphin Lake agreed to try to reduce the walleye harvest by 50% for a few years in an effort to bring the population back. Catches have declined by 95% over the past twenty years.

Forestry
The 1987 Forest Renewal Program was extensive, with the Western Region breaking new ground in various areas. A power disc trencher mounted on a D7-G widepad was used for treatment of some 717 ha of cut-overs. This technique was the first of its kind in Canada and it was most effective at preparing poorly drained sites for the 1988 spring planting program.

An Aerial White Spruce Cone Collection Program using a cone harvester and Hughes 500-C helicopter was a success, with over 280 hectolitre of cones collected in the Duck Mountain and Porcupine Hills. The extracted seed will satisfy a 10 year seedling requirement for the Western Region. As well, a fall White Spruce Planting Program with freshly lifted transplant stock was carried out in September. The fall planting program will be evaluated in terms of balancing the targeted 2.3 million trees/year between the spring and fall planting seasons.

Parks
During the 1987 season several docks were refurbished at various sites in the Duck Mountain Provincial Park. Construction of a games area was started at Wellman Lake. Extensive cross country hiking trail work was undertaken in the Duck Mountains and a new non-modern washroom and fish cleaning building was constructed at Whitefish Lake. The sewer and water system at Manipogo Provincial Recreation Park was extensively rebuilt by Engineering and Construction Branch. Park use was considered normal over the season.

Fire Management
There were 13 Volunteer Fire Crews in the region. The Alonsa area (outside of the Wooded District) was supplied with handtools and a fire fighting course. This resulted in the L.G.D. actioning their own fires. Within the L.G.D. of Mountain, the 6 volunteer crews actioned 3 fires on their own initiative.

There were a total of 42 fires in the region with 3 having potential for serious damage. All three were brought under control quickly due to a waterbomber and helicopter being based in the region at the time.

Wildlife
The Canada-Manitoba Beaver Control Program along the north side of the Riding Mountain National Park was operational again and resulted in removal of 262 dams and 53 beaver as a result of 40 complaints.

The non-resident bear hunting issue remained controversial, but by late fall, after a series of meetings with the interested groups, a plan for allocating areas was put into action along with clarification on some of the regulations related to baiting.

Enforcement
Enforcement efforts continued to be applied to the illegal hunting of big game. Efforts to curtail illegal fishing were also undertaken and attention was also given to forestry harvesting compliance. Staff were regularly reassigned to problem areas throughout the region.

Miscellaneous
Adjustments in district boundaries and combining of duties resulted in each district assuming responsibility for all resource operational functions within their area. This eliminated duplication and allowed for all public inquiries to be served out of each district office.

Southwest Region

Fisheries
Lake Manitoba commercial fishing patrols were carried out with special emphasis on monitoring the winter experimental perch fishery and summer domestic fishing. A total of 65 illegal nets were seized.

A successful aeration and stocking program on Bower Lake in Turtle Mountain provided increased angling opportunity with numerous rainbow trout in the 3.6 to 4 kilograms range. The stocking of Adam Lake with northern pike also provided additional angling enjoyment.

Parks
In order to reduce congestion, the boat launch at Rivers campground was relocated and a larger parking area constructed.

In the Turtle Mountain Provincial Park, shower stalls were installed at Adam Lake Campground and an overnight cabin was constructed at James Lake for cross-country skiers and hikers.

At Spruce Woods Provincial Heritage Park, an information kiosk in the Spirit Sands area was completed and displays installed. A private concession was constructed in the Kiche Manitou Campground.
Due to the hot dry summer, most campgrounds reported an increase in use.

Wildlife
As a result of a dry fall and favorable harvest conditions, waterfowl depredation was reduced. A total of 84 complaints were actioned, compared to 278 in 1986.

The Riding Mountain Beaver Control Program was continued with 294 dams destroyed and 310 beaver removed from the area.

Enforcement
Complaints between landowners and hunters were down considerably.

Increased efforts were carried out for specific enforcement problems throughout the region. Nightlighting prosecutions were up from 13 in 1986 to 45 in 1987.

Special enforcement efforts carried out on the Oak Lake winter sport fishery resulted in 9 warnings and 29 prosecutions.

General
In an effort to improve program delivery by Natural Resource Officers in the southern portion of the province, district boundaries were realigned and the Manitou District was annexed to the Southwest Region from the Southeast Region.

Radio dial-up was installed at the Brandon Hills repeater site. New repeaters were established at Lenore and Bruxelles, which enhanced radio coverage in the Manitou and Virden Districts.

A compound and warehouse were established at Killarney on property leased from the Town of Killarney.

Eastern Region

Fisheries
Commensurate with the increase in sport angling activities, two new fishing lodges were constructed east of Lake Winnipeg on Amphibian Lake and Family Lake. Size limits and barbless hook regulations were introduced to enhance the sport fishing on Lac du Bonnet. There were a total of 89 fishery prosecutions with 22 warnings issued. Compliance remained at 98%. Enforcement action was increased in the Lockport area to curtail fishing over daily catch limits and fishing near the fishladder. Staff checked 2,771 anglers and laid 73 charges.

Forestry
The region's forestry operations during the summer were hampered by hot weather and extreme fire conditions.

Abitibi Price had a slight increase in volume harvested. Mill consumption was 495,000 cubic metres. In the Forest Management Licence Area, 252,188 cubic metres were harvested.

The reforestation program resulted in four million trees planted, with 2.6 million being planted by Abitibi Price. In addition, some 1,260 hectares of site preparation for tree planting was carried out, with Abitibi preparing some 955 additional hectares.

The "Cut Your Own Christmas Tree" program at Beausejour continued to be a success, with 5,800 Christmas trees being cut by permittees, almost all of whom were from Winnipeg.

Parks
Provincial park use was similar to the previous year. Overall there were 5,144 camping unit days, a slight decrease, possibly attributed to the Wallace Lake Campground being closed.

A slight decrease of 1% in park entrance was experienced at Grand Beach and Birds Hill Provincial Parks. The latter recorded 146,850 vehicles entering the park.

Provincial parks in the region continued to host numerous special events. Birds Hill Provincial Park hosted the 14th Annual Folk Festival. Attendance was 28,189, an increase of approximately 6,000 from 1986. Other special events took place in the Park on 78 days throughout the year.

At Grand Beach, each weekend during the summer a special event was hosted, resulting in heavy day use and beach traffic. Approximately 50,000 people visited this site on the August long weekend.

At Springhill Winter Park there were 62 operating days, the shortest season on record due to a late winter and lack of snow.

Wildlife
The region actioned 169 problem wildlife occurrences. In response to increased wolf sightings and complaints, the population was closely monitored as part of a special study.

Deer tagging and collaring was carried out during the late winter months in connection with the deer management program at Birds Hill Provincial Park.

The Atikaki Woodland Caribou Study continued in the Shallows Lake and Black Lake areas through a joint venture with Abitibi Price.

Discussions continued with the Hollow Water Indian Band with a view to increasing co-operative efforts in wildlife management.

Catfish Creek Wildlife Management Area was established near Pine Falls to enhance management of wildlife in the area.

An increase in upland game bird populations was noted with excellent hunter success.

Bear management areas in Lac du Bonnet & Bissett were all allocated to outfitters for non-resident bear hunting.

Forty-two deer were killed by vehicles adjacent to Birds Hill Provincial Park on Highway 59. Ongoing preventative measures were continued with deer reflectors, alfalfa plots and water holes in place to keep the deer within park boundaries.

Enforcement
There were 2,089 hunters checked with a 98% compliance rate.

Increased emphasis on pro-active enforcement resulted in 595 prosecutions and 172 warnings. There

were 119 evictions in parks, a 61% decrease from the previous year.

An enforcement strategy for Grand Beach Provincial Park was initiated to curb rowdyism. Along with late night control at the main gates, a system of campground, townsite and beach area patrols was implemented.

Wild Rice
The total harvest of wild rice in the region was approximately 653,000 kilograms, more than double that of the previous year.

Enhanced field monitoring and enforcement was carried out by field staff during the wild rice season. These controls were well received by producers.

Fire Program
Eastern Region had 118 forest fires, including an early spring fire at Wallace Lake that destroyed 54 cottages. Of the total number of fires, 45 were lightning caused and 73 were human-caused. A total of 51,267 hectares were burned.

The Canadian Forestry Service provided a Fire Behaviour Prediction program based on current weather and fuel types. The program was tested throughout the summer and will be used to establish fire alert staffing levels.

A fire hose repair depot to rehabilitate fire hose was established at Pine Falls.

A program to address the problem of extinguishing peat fires was developed with the local government districts and rural municipalities. With the co-operation of these latter agencies, all peat fires that posed a danger or potential spring fire hazard were extinguished.

The Fire Prevention Officer made 964 public contacts to reduce the number of human-caused fires. Eight fire caches manned by volunteers were established in the region.

Interlake Region

Fisheries
A new perch fishery using three inch mesh nets over all of Lake Manitoba was opened January 25th, 1988. This harvest generated considerable debate, particularly from fishermen in the northern basin who felt the "small mesh" operation would have a long term negative impact on the lake's sauger and pickerel stocks.

An enhanced program of sustained commercial fisheries patrols was maintained on Lake Winnipeg during the open water and winter seasons.

Overall commercial production within the Interlake Region was up from previous years.

Sport fishing activity and pressure remained consistent with previous years.

Approximately 10,000 anglers were checked with the focus on the popular activity areas, i.e. Red River, Netley Creek and Grand Rapids.

Forestry
There was a total of 33 timber sales operating in the Interlake Region.

Late freeze-up and poor travel conditions resulted in a slow start to operations. As a result, Abitibi Price had difficulty in getting sufficient wood.

A total of 64,971 cubic metres of wood was produced under timber sale contracts.

There were 1,028,564 softwood seedlings planted.

Parks
The warm dry summer resulted in heavy use of all Interlake park system campgrounds, particularly in Hecla Provincial Park.

The second annual reunion for former Hecla Island residents was attended by approximately 450 people.

Day-use facilities and beach use increased at Winnipeg Beach compared to the past two summers.

Wildlife
To control more effectively the increased demands of non-resident bear hunters and their outfitters/guides, the Interlake Region was divided into management areas assigned to the various licenced bear outfitters. In this way each outfitter sets out baits within his assigned area for the exclusive use of his clients. This strategy was implemented in recognition of the need to control the number of bears taken by each outfitter and to minimize conflicts between the outfitters and Manitoba hunters.
Within the region, moose harvest by sportsmen was: licenced hunters - 160, Treaty Indians - 220. A total of 8,200 hunters were checked (Big Game, Migratory Birds, etc.) with a 97% compliance rate.

The Waterfowl Depredation Program in the Oak Hammock Marsh area was enhanced over previous years. A depredation coordinator was engaged and, within the control area, depredation problems were sought out in an effort to displace birds before they became established in fields. Feedback from farmers indicated that they were pleased with the results of the program.

In other parts of the region, complaints of geese feeding on domestic hay crops rose dramatically compared to the past several years. This was attributed to the current popularity of growing hay and the perception that birds may have developed a taste for the root portion of these crops, particularly in wet spring weather.

All of the agricultural areas of the Interlake experienced a heavy influx of skunks during the fall with several cases of suspected rabid animals reported to district officers.

Enforcement
There was a 22% increase in prosecutions and warnings, a total of 565 compared to 440 for the previous year. All regulatory categories reflected an increase in prosecutions with the most significant increases related to wildlife, fisheries and parks activities.

The T.I.P. Program continued to be well received in the Interlake. From a total of 55 calls, 12 charges and 3 warnings were issued.

Overall, the region recorded a total of 1,539 District Occurrence Reports with 33.5% related to problem wildlife, 42.4% complaints regarding illegal hunting and fishing activity and 24.1% in the non-regulatory resource category.

Fire Program
The hot and dry May weather resulted in 21 fires throughout the Region. Even though several of the fires were in excess of 1,000 ha, very little timber of commercial value was destroyed. For the year, fire occurrences numbered 42, of which 32 were human caused and 10 were caused by lightning.

Southeast Region

Fisheries
Ninety-one commercial fishermen participated in the regular winter fishing season on that portion of the south basin of Lake Manitoba administered by the Portage la Prairie District. In addition, 65 permits were issued for the small mesh perch fishery which lasted for approximately one month.

An exceptionally late freeze-up hampered fishing, resulting in considerable loss of fishing gear.

Overall production (including the special perch fishery) was estimated at slightly higher than last year.

Sport fishing activity was about the same as last season, but success was considerably lower. Production and success rates on Lake of the Woods was estimated at 30% lower than the previous year. This was probably due to the lower water levels.

Forestry
An extensive planting program continued in the Eastern/Southeastern portion of this region. There were 2,389,200 seedlings planted compared to 1,376,228 in 1986.

Timber operations varied very little from the past year. The 1987 operation consisted of 34 active timber sales, 10 quota permits, 96 commercial permits and 645 own-use permits, compared with the 1986 total of 40 timber sales, 10 quota permits, 98 commercial and 653 own-use permits.

Parks
Park use in most of the region was comparable to 1986, with the exception of St. Malo Provincial Recreation Park, where a substantial increase was noted. Vehicle attendance at St. Malo was 80,351 in 1987 compared to 64,652 in 1986.

Rowdyism and vandalism continued to be a concern in the district with some equipment stolen and buildings vandalized.

Wildlife
There were 420 problem wildlife related occurrences actioned. The special animal control employee working out of the Winnipeg District removed 211 nuisance animals compared to 253 the previous year. The city's dead animal pick-up service was called upon to remove 100 deer (mostly vehicle-killed) from in and around the city.

The third phase of the Live Deer Removal Program was not very successful due to lack of snow, mild weather and abundant food supply. Only 19 deer were removed, compared to 156 the previous year.

Deer populations were at an all time high in the southeast part of the region. Moose and black bear populations remained fairly stable.

A sharp rise occurred in ruffed grouse, while sharp-tailed grouse populations remained fairly stable.

Enforcement
Enforcement patrols conducted in an effort to detect and control violations of the various Acts and Regulations resulted in 362 charges being laid and 143 written warnings being issued. This was considerably higher than the previous year.

Natural Resource Officers checked 1,505 anglers, 61 commercial fishermen, 1,870 big game hunters, 1,754 migratory bird hunters, 304 upland game bird hunters and 55 Treaty Indians exercising their Treaty rights. Officers actioned 1,474 occurrences throughout the year.

Fire Program
The Southeastern Region experienced only nine fires this season, although one was a major fire, burning 2,000 hectares. Generally dry conditions prevailed until green-up. Precipitation was below-normal, thus contributing to the fire hazard. The Fire Alert System was instituted and worked extremely well in determining staffing levels during higher level alerts (Yellow, Orange and Red). Marchand weather station recorded seven days in the Red Alert range. The main cause of fires in the region was incendiary fires, with only one lightning fire recorded. Due to the high fire hazard throughout the region, travel restrictions were implemented from May 14 to 17.

Arson was the cause of the one major project fire and charges were laid by the R.C.M. Police. Preliminary hearings took place in Steinbach on November 16 and 17, but the matter had not been resolved by year end.

General
The Southeast Regional boundaries were realigned during 1987. Manitou District is now part of the Southwestern Region.

Whiteshell Region

Fisheries
A total of 5,077 anglers were checked, resulting in 29 charges and 8 warnings.

Fisheries and Natural Resource Officers blasted a ditch between Hemenway Lake and Crowduck Lake to allow walleye fry to move into Crowduck Lake. Results have shown that walleye fry are moving into Crowduck via the ditch.

Forestry
Planting, utilizing contract and departmental hand planters, resulted in 611,190 seedlings being planted in 15 newly established plantations.

Fifty-nine active timber sales operated during the year. In addition, 206 commercial permits, 370 own-use permits and 16 quota permits were issued.

Parks
Enforcement activities resulted in 219 charges and 14 warnings under the Liquor Control Act, 107 charges, 117 warnings for Park Lands Act offenses, as well as 38 charges and 12 warnings under the Highway Traffic Act.

The Alf Hole Goose Sanctuary attendance was down approximately 24% to 18,857 visitors.

Revenue for Falcon Lake Golf Course was $333,814.00, with a total of 30,622 rounds being played.

Bannock Point Rehabilitation Crews worked a total of 5,289 man days for the year.

There was very low precipitation during the year and the first snow fell on December 11, 1987. This resulted in light use of snowmobile and ski trails in December and January, with only moderate use for the remainder of the year.

The 1987 Backcountry Patrol Program made some significant steps forward since its inception in 1985. Personal contact has steadily increased, and the number of violations and complaints have decreased. The department has received the co-operation and support of most of the lodge operators and outfitters working in the area. Although there was a decrease in violations, liquor offences remain a problem.

In 1987, a total of 745 contacts were made in the backcountry. Of these, only 47 were made in the Wilderness Zone. A total of 42 days were spent in the field, of which 11 days were spent in the Mantario Wilderness Zone. A total of 65 violations were encountered, resulting in a compliance rate of 91%, a significant improvement over 1985's 74% compliance rate. Forty-five percent of the violations were liquor related, 29% were Park Land Act offenses, and 23% were fisheries related.

The 745 contacts in the remote areas of the park provided an excellent opportunity to deliver on-site education in the no-trace camping ethic, resource law, natural history, parks programs and policies.

Wildlife
This was a very poor year for birds, but there was a good population of deer. Deer hunting opened with a large number of bucks taken. Very few moose were taken during the moose season.

Some 4,016 hunters were checked during the year - 3,027 big game, 94 migratory bird and 895 upland game. There were 38 charges laid and 11 warnings were issued under The Wildlife Act.

Eight hunters became lost this year, but all were successfully found.

Wild Rice
The number of permits issued increased substantially from 1986, with 321 hand pickers permits being issued, compared with 189 for the previous year. Thirty mechanical pickers permits were issued, (an increase of 16) and five buyers permits issued, compared to three in 1986.

Hand harvesting began August 27 with little difficulty, and mechanical harvesting on September 10 in Zone B. The three-zone breakdown worked well, providing hand pickers with more opportunity to harvest before the machines.

Violations included three warnings for hand picking before the season, three charges for operating a harvester without a permit, and one charge for failing to comply with the conditions of a permit.

Native harvest of game during the rice season was estimated at 3 moose, 15 deer, 50 ruffed grouse, and 20 ducks. Rice prices were very low - from 33 to $1.32 per kilogram for good quality. The quantity purchased was estimated at 100,000 kilograms.

Legislative Services Program

The branch coordinated and assisted in the development and drafting of legislation for the various branches in the department and assisted in the development of legislation for several other departments and the Government of Canada. This included amendments to the Crown Lands Act, The Fisheries Act (Manitoba), The Ground Water and Well Water Act, The Water Rights Act, The Water Supply Districts Act, The Wildlife Act, The Fires Prevention Act, The Forest Act, The Dutch Elm Disease Act, The Ecological Reserves Act, The Provincial Floral Emblem and Tartan Act and development of a new Endangered Species Act.

The branch also coordinated the department's regulation maintenance and development program and assisted in drafting regulations under a number of departmental statutes, plus regulations under The Surveys Act, The Water Power Act, The Fisheries Act (Canada) and The Canada Shipping Act (Boating Restrictions Regulations).

The branch, in conjunction with the Regulations Unit of the Attorney General's Department, coordinated the translation and re-enactment of most regulations within the department's purview of responsibility into the dual French-English format.

Enforcement and Court Services Program

The Headquarters Section continued to be responsible for the co-ordination and administration of the court, offence distribution, warrant, suspension and disposal of confiscated goods activities of the department. In 1987, the branch processed in excess of 4,180 individual files and court documents.

The branch continued to develop and refine the offence descriptions and set fines for all legislation enforced by the department. This involved amendments to regulations under The Fisheries Act (Canada) and The Summary Convictions Act which were carried out in conjunction with the Court Services Branch of the Attorney General's Department, the Federal Department of Fisheries and Oceans and several other departments, agencies and provinces.

During 1987, realignment of the branch's headquarters enforcement activities continued by revising all relevant offence reporting forms in order to complete the decentralization of this system for implementation at the regional level beginning with the 1988-89 fiscal year.

During 1987, one of the branch's main enforcement objectives was to develop a more effective enforcement strategy to control liquor abuse and the resulting vandalism and rowdyism within the provincial park system - Falcon Lake, West Hawk Lake and Grand Beach being the most troublesome areas. Through consultation with Parks Branch, department field enforcement staff, and other departments and agencies, a multi-step, low tolerance, anti-rowdyism program was developed for implementation with the beginning of the 1988 park season.

T.I.P. (Turn In Poachers) Program

Fiscal year 1987 saw the T.I.P. Program in its third year of operation. A concerted effort by The Manitoba Wildlife Federation and Manitoba Natural Resources to publicize the program resulted in a 33% increase in calls received, a total of 705 calls in 1987-88. Prosecutions totalled 124.

Three disabled people were hired to dispatch calls to the appropriate district Natural Resource Officers after-hours during the week, and on weekends.

Preliminary discussions were held with Crimestoppers to work more closely together and to work toward a joint promotional program.

Officer Training Program

During fiscal year 1987-88, officer safety was again a priority. Forty-eight Natural Resource Officers completed the Advanced Tactical Driving Techniques Course and fifty completed the Officer Safety and Self-Defence Course. Other safety related courses included Boat Operation/Navigation, First-Aid, and C.P.R. Additional training provided for Natural Resource Officers, as well as other staff included Park Patrol Training, Essentials of Management and various computer training courses. The Natural Resource Officer Trainee Monitoring Program was continued.

Forest Fire Program

General Fire Situation

A total of 523 fires burned 170,107 hectares during the year, with three periods of high fire activity. In early May the Wallace Lake fire in the Eastern Region destroyed over 25,000 hectares of forest, as well as 54 summer cottages and a lodge. Mid-June produced a multiple lightning fire situation in the Northwest and Northeast Regions and a dry fall allowed many peat fires to burn in the Eastern, Whiteshell and Southeast Regions of the province.

Fire Program Operations

Eleven aircraft were contracted for the fire season, comprised of four CL-215 waterbombers, an Otter and

six helicopters. A total of 6,650.5 hours were flown for fire suppression purposes. A foam injection kit was purchased for one of the CL-215 waterbombers and was to be installed for the 1988 fire season.

Work continued on the use of a sprinkler system in conjunction with power pumps, as well as on the application of foam products for fire suppression.

Fire training was carried out at district, regional and provincial levels for hundreds of participants. Four specialized Project Fire Teams were developed for deployment during Project Fire situations. Training also continued in Fire Behaviour Prediction, with two training sessions being held.

Fire Prevention activities included the Honorary Fire Guardian Program and the use of Smokey Bear materials. A Fire Prevention Task Force was developed in an effort to reduce the number of human caused fires.

Other Programs and Activities

Under the Hunter and Firearm Safety Program, 385 volunteer Hunter Safety Instructors throughout the province trained 2,953 students in the proper handling of firearms. A total of 103,565 persons have received training since the program began in 1964.

Fifteen claims were made under the Livestock Compensation Program for Hunter Killed Livestock. Ten of the claims qualified for compensation and a total of $8,720.00 was paid out.

A total of 877 guide licences were issued in 1987-88 compared to the previous year total of 947.

Livestock Compensation Program

Year	Claims	# Claims Paid	Total Paid	Average Paid
79/80	5	1	$ 609.50	$ 609.50
80/81	8	3	2,289.50	763.17
81/82	21	11	6,300.00	572.73
82/83	23	12	13,500.00	1,125.00
83/84	26	10	10,518.00	1,051.80
84/85	8	5	2,499.04	499.80
85/86	6	1	1,820.00	1,820.00
86/87	10	8	5,879.47	723.93
87/88	15	10	$8,720.00	$ 872.00

Hunter and Firearm Safety Program

Calendar Year	Students	Total to Date	Instructors Certified
1980	3905	78,147	51
1981	4614	82,788	63
1982	4460	87,248	45
1983	3315	90,563	58
1984	4150	94,713	47
1985	2977	97,690	38
1986	2922	100,612	28
1987	2953	103,565	30

Firearm Accidents

Calendar Year	Accidents			Fatalities		
	Hunting	Non-hunting	Total	Hunting	Non-hunting	Total
1980	9	13	22	1	2	3
1981	24	10	34	2	2	4
1982	13	7	20	0	1	1
1983	8	12	20	2	3	5
1984	13	3	16	2	0	2
*1985	12	14	26	1	0	1
1986	15	17	32	4	0	4
1987	16	9	25	2	1	3

** Prior to 1985, Treaty Indian firearm accidents were not included in accident totals.*

Problem Wildlife Occurrences, 1987-88

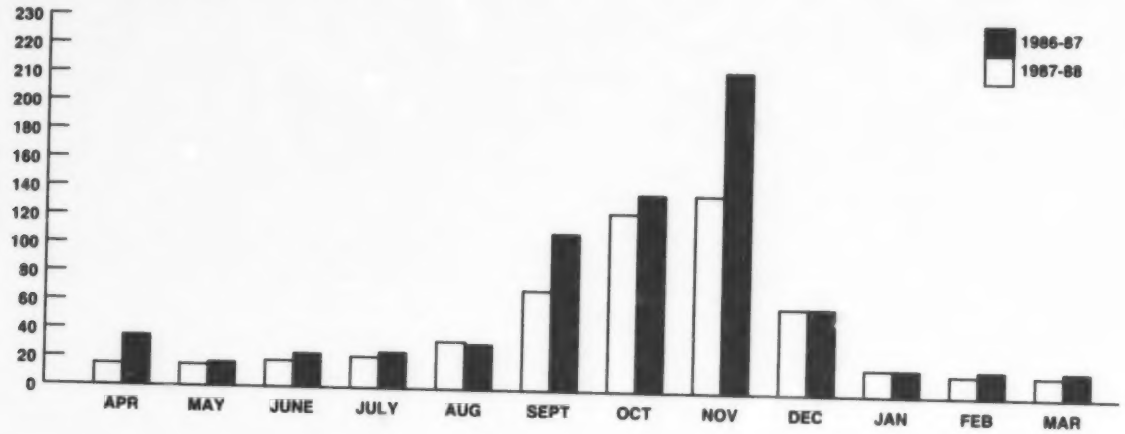
Species	Region								Species Total	Percent of Total
	NE	NW	SE	SW	E	INT.	W	WH		
Beaver 100%*	3	19	69	88	22	61	36	5	303	13%
Beaver 50-50*	0	0	0	139	0	0	4	0	143	6%
Black Bear	83	120	19	22	84	88	56	37	509	21%
Polar Bear	99	0	0	0	0	0	0	0	99	4%
Elk)) Big Moose)) Game Deer)	0	5	46	51	9	34	89	0	234	10%
Wolf	11	2	10	10	9	10	7	1	60	2%
Migratory Birds	0	48	22	94	4	208	63	2	441	18%
Other	2	18	254	114	41	115	57	16	617	26%
TOTAL	198	212	420	518	169	516	312	61	2406	100%

** Beaver 100% refers to areas where costs are supported 100% by the Province. Beaver 50-50 refers to areas around Riding Mountain National Park where costs are shared 50% by the Federal Government.*

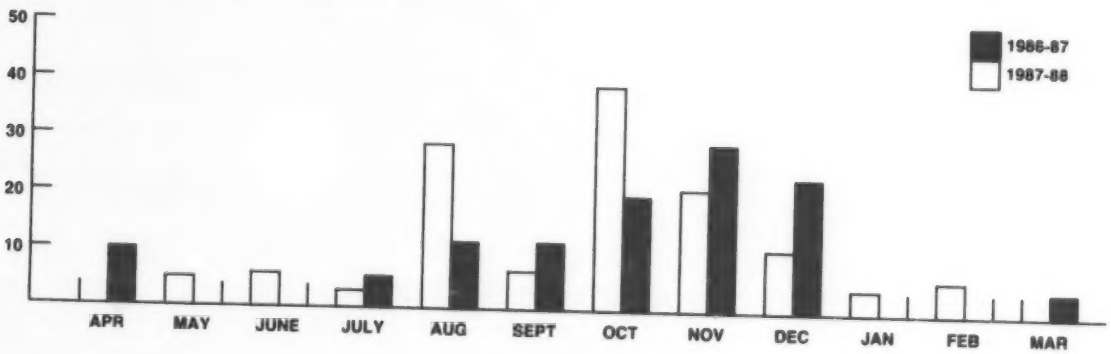
T.I.P. Calls by Region

Region	Number of Calls				Number of Charges			
	Fish	Wildlife	Other	Total	Fish	Wildlife	Other	Total
Southeast	19	221		240	2	42	8	52
Southwest	17	153		170	7	9	8	24
Interlake	19	117	1	135	22	8	0	30
Western	3	51	1	55	0	6	0	6
Eastern	15	51	1	67	1	5	1	7
Whiteshell	6	17		23	3	0	0	3
Northwest	0	3		3	0	0	0	0
Northeast	2	11		13	0	2	0	2
TOTAL	81	621	3	705	35	72	17	124

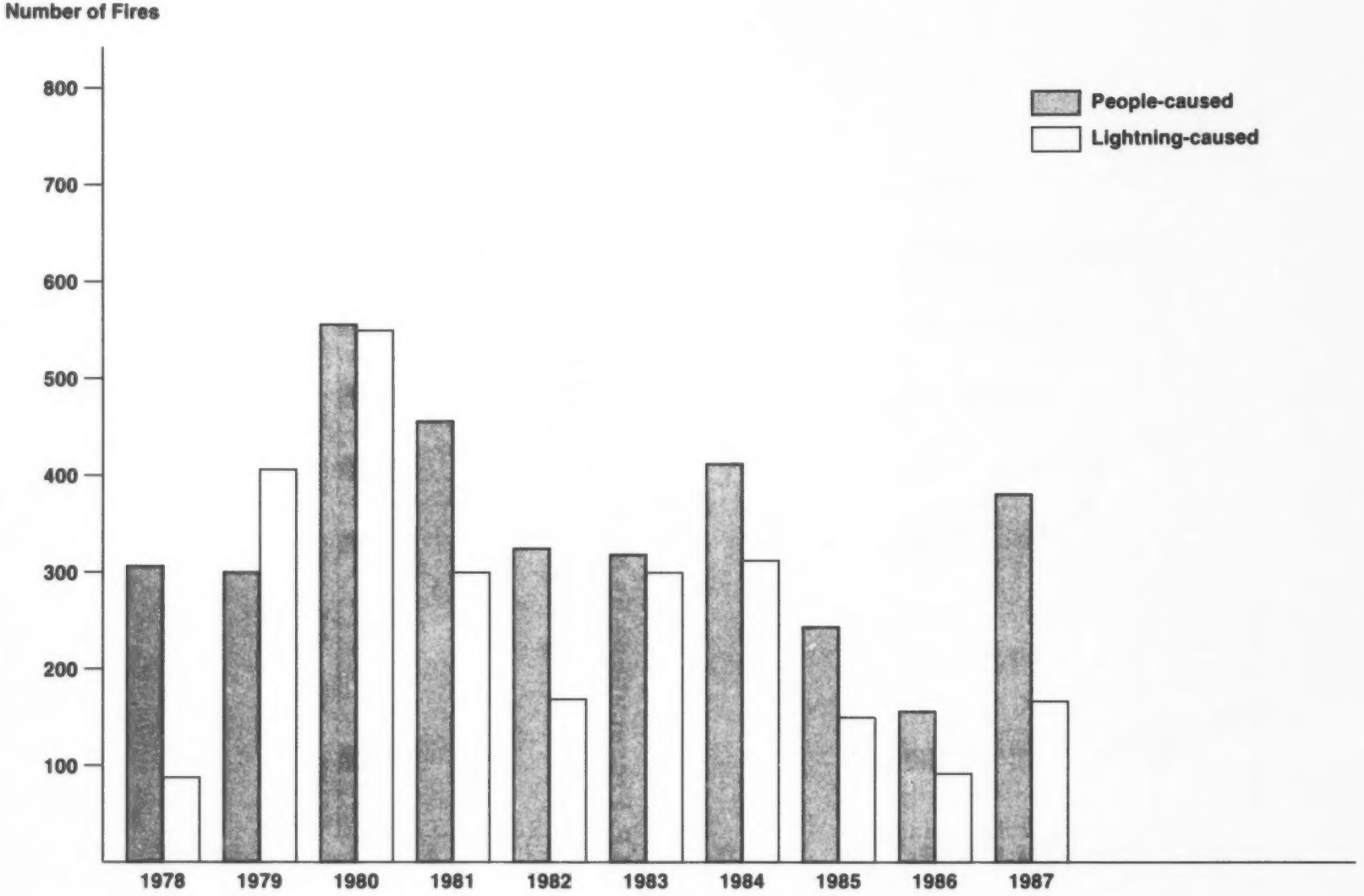
T.I.P. Calls By Month



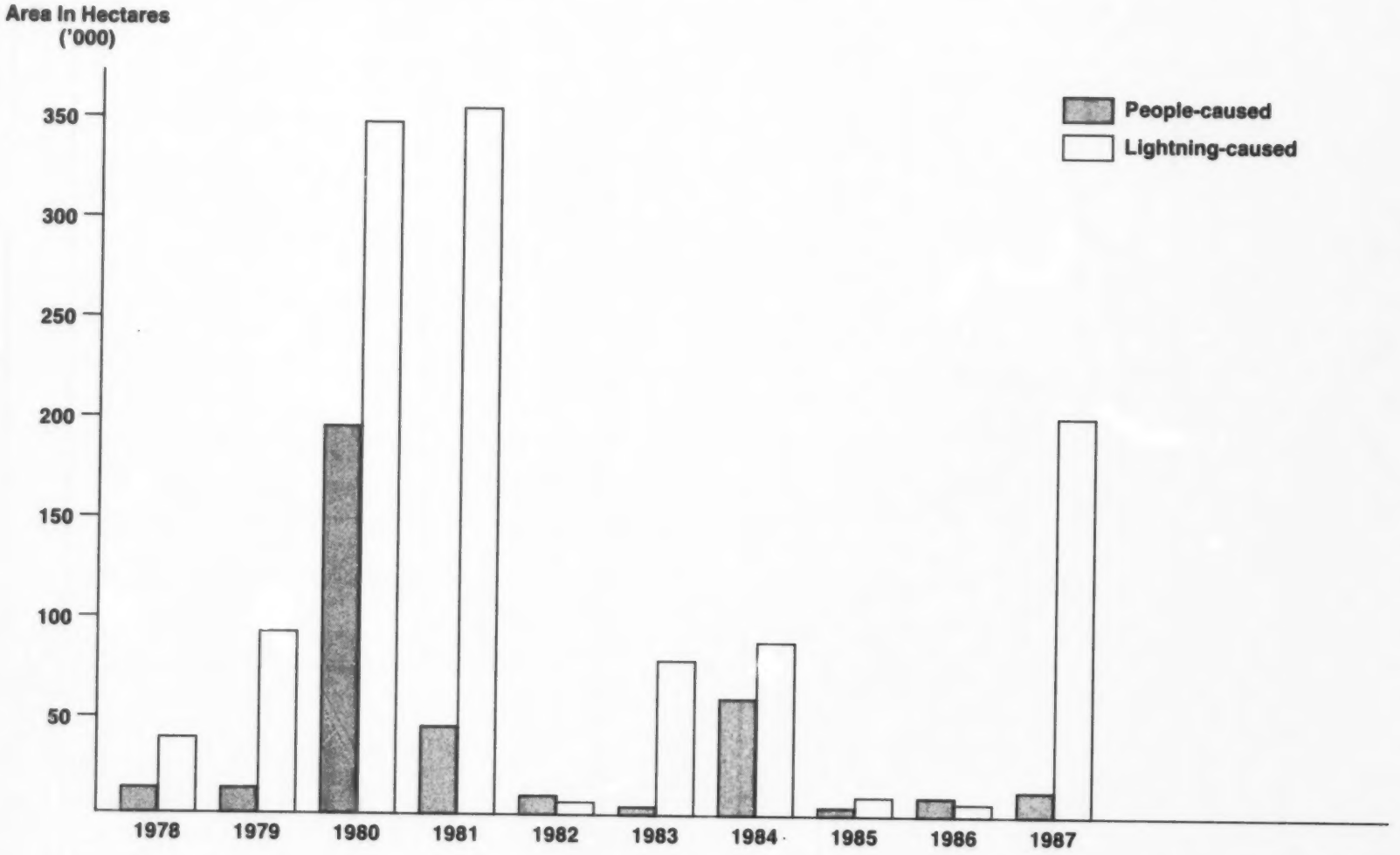
T.I.P. Prosecutions By Month



Number of Fires by Year 1978 - 1987



Area Burned by Year 1978-1987 (In thousands of hectares)



1987 Fires, By Cause

	Number of Fires		Percentage		Area Burned (HA)	
Cause	1987	5 yr. ave.	1987	5 yr. avg.	1987	5 yr. avg.
Recreation	94	73.8	18.1	16.0	1,526.2	1,149.8
Settlement	125	99.0	24.1	21.4	3,730.7	3,728.3
Woods Operations	8	4.6	1.5	1.0	1,043.8	213.4
Other Industrial	9	5.4	1.7	1.2	550.1	144.0
Railways	12	18.4	2.3	4.0	16.3	141.5
Public Projects	8	12.8	1.5	2.8	9.2	90.9
Incendiary	14	18.2	2.7	3.9	2,511.9	1,471.4
Miscellaneous	6	3.2	1.2	.7	9.2	10.0
Agriculture	38	37.8	7.3	8.1	5,826.2	9,361.9
Total Human Caused	314	273	60.5	59.1	15,223.6	16,311.2
Total Lightning	205	189	39.5	40.9	154,296.5	67,894.2
Total	519	462	100	100	169,520.1	84,205.4

Most Common Violations Under The Provincial Park Lands Act, 1987-88

Nature of Offence	Number of Prosecutions	Number of Convictions	% Convicted	Number of Warnings	Total Offences	Percent Increase or Decrease
Cause Disturbance	64	56	87	97	161	– 48
Unauthorized Fire	12	1	8	17	29	– 48
Operate Vehicle in Non-Designated Area	6	6	100	25	31	– 43
Damage/Deface Park/Public Property	6	5	83	1	7	– 74
Illegal Parking	33	30	91	13	46	+ 35
Noisy/Dangerous Vehicle Operation	9	8	89	6	15	– 25
Loose Pets	8	8	100	11	19	+ 633
Other	96	92	96	91	187	+ 75
TOTAL	234	206	88	261	495	+ 17

Total Fines: $14,808.00 (– 33%)
Average Fine: $71.88 (– 2%)

[1] *1987-88 statistics are estimated due to a changeover in computer programs, but are accurate to within ± 5%.*

Comparison of Wildlife, Fisheries, Parks and Migratory Birds Prosecutions Regional Services Branch, 1978-79 to 1987-88

Fiscal Year	Wildlife	Fisheries	Parks	Migratory Birds
1978-79	804[2]	321[3]		
1979-80	782[2]	370[3]		
1980-81	438[2]	446[3]		
1981-82	897	597[3]	179	69
1982-83	557	475[4]	108	22
1983-84	604	555[4]	157	30
1984-85	561	475[4]	121	41
1985-86	686	452[4]	226	83
1986-87	557	494[4]	270	58
1987-88	594	524[4]	234	41

[1] *1987-88 statistics are estimated due to a changeover in computer programs, but are accurate to within ± 5%.*
[2] *Includes violations under The Wildlife Act and The Migratory Birds Convention Act.*
[3] *Sportfish violations only are shown for 1981/82 and earlier.*
[4] *Includes The Fisheries Act (Canada) and The Fisheries Act (Manitoba).*

Most Common Violations Under The Fisheries Act (Canada), The Freshwater Fish Marketing Act and The Fisheries Act (Manitoba), 1987-88

Nature of Offence	Number of Prosecutions	Number of Convictions	% Convicted	Number of Warnings	Total Offences	Percent Increase or Decrease
Sport Fish:						
Sport Fish w/o Licence	95	92	97	14	109	– 31
Angle with too many lines	38	38	100	7	45	– 44
Exceed Limit	60	54	90	14	74	+ 45
Fail to carry/ produce licence	20	15	75	24	44	– 81
Fish within 25 yards of fishway	49	46	94	3	52	+ 37
Transport unidentifiable fish	12	12	100	9	21	+ 50
Commercial Fish:						
Small Mesh Nets	9	9	100	7	16	– 20
Commercial Fish w/o Licence	6	5	83	6	12	– 14
Fail to mark equipment	9	3	33	7	16	– 30
Decayed fish	5	5	100	0	5	+ 54
General/Domestic Fish:						
Fish/Possess Fish Other than in Accordance with Act/Regulations	32	28	88	9	41	– 24
Fish during closed season	24	18	75	17	41	+ 52
Fish/Possess fish w/o lawful reason	1	1	100	0	1	– 88
Other	164	156	95	79	243	+102
Total	524	482	92	196	720	– 16

Total Fines: $23,927.00 (– 7%) Total Costs: $2,092,000 (+ 27%)
Average Fine: $49.64 (– 14%)

[1] *1987-88 statistics are estimated due to a changeover in computer programs but are accurate to within ± 5%.*
[2] *Compared to Fiscal Year 1986-87.*

Most Common Violations Under The Wildlife Act, 1987-88

Nature of Offence	Number of Prosecutions	Number of Convictions	% Convicted	Number of Warnings	Total Offences	Percent Increase or Decrease
Loaded Firearm	130	122	94%	12	142	–30
Nightlighting	120	109	91%	2	122	+17
Hunt on Private Land w/o permission	64	46	72%	22	86	+ 5
Possess Illegally Taken Animal	48	41	85%	1	49	+ 2
Hunt without Licence	23	19	82%	16	39	+26
Hunt out of season	22	20	91%	15	37	– 9
Other	187	137	73%	179	366	+ 5
TOTAL	594	494	83%	247	841	+ 5

Total Fines: $107,113.00 (+20%) Total Costs: $31,070.00 (+94%)
Average Fine: $216.83 (+14%)

[1] *1987-88 statistics are estimated due to a changeover in computer program but are accurate to within ± 5%.*
[2] *Compared to Fiscal Year 1986-87.*

Summary of Recorded Violations, 1987-88

	Disposition					
	Number of Prosecutions	Number of Convictions	% Convicted	Number of Warnings	Total Offences	Percent Increase or Decrease
Liquor Control	739	692	94	31	770	– 11
Wildlife	594	494	83	247	841	+ 5
Fisheries	524	482	92	196	720	– 16
Provincial Park	234	206	88	261	495	+ 17
Highway Traffic	218	192	88	79	297	0
Migratory Birds	41	37	90	23	64	– 26
Clean Environment	12	11	92	12	24	– 25
Snowmobile	25	25	100	20	45	+ 22
Criminal Code	16	9	56	2	18	+ 28
Forest	6	6	100	21	27	– 27
Fires Prevention	23	21	91	53	76	+192
Petty Trespass	1	1	100	0	1	– 97
Wild Rice	4	4	100	3	7	+ 75
Crown Lands	0	0	0	16	16	+ 33
Subtotals	2,437	2,180	89%	964		
Total	3,401				3,401	– 9

Fines: $213,239.00 Warnings: 964 Evictions: 189
Costs: $ 56,508.60 Prosecutions: 437 Trespass (Forestry): 7

[1] *Compared to fiscal year 1986-87.*

Surveys and Mapping

This branch administers The Surveys Act (Part II); provides legal land descriptions for permits and leases under various provincial acts; maintains the geographical names authority; implements and maintains a provincial system of legal and control surveys; provides a geocoding base for computer land information systems; produces topographical and geographical maps; maintains a map distribution system, air photo library and remote sensing centre.

Land Description Services

Legal land descriptions and liaison services were provided for all Crown land transactions such as plans of subdivision, land or mineral exchanges, the Agricultural Crown Land Sales Program and for permits and leases under The Crown Lands Act and The Mines Act. The branch also provided Consents and Orders of the Minister under The Municipal Act and The Municipal Board Act to expedite the conveyance of mines and minerals for the purposes of land subdivision.

Activity	1986-87	1987-88
Requests for service from government and private sources	634	387
Output:		
Legal Descriptions prepared	681	335
Area calculations	127	46
Right-of-Way Agreements	24	
Survey Requirements	178	8
Ducks Unlimited Agreements	57	7
Mines and Minerals Reports	45	58
Consents and Orders of the Minister	30	38

Manitoba Geographical Names Program

Program staff were involved in the development of federal and provincial name policies and procedures which address issues such as the treatment of names of geographical features shared by Canada and the United States and the treatment of French language nomenclature. A review of Order-in-Council (PC 1969-1458) under which the Canadian Permanent Committee on Geographical Names operates, was conducted.

On May 31st the Minister of Natural Resources presented a Commemorative Name 1 Certificate to Mrs. Eileen Marvin commemorating the naming of Marvin Island in Whitemud Lake after her late husband, Frank G. Marvin. As a conservationist, he was instrumental in the establishment of the Forest Interpretive Centre near this lake in the Duck Mountain Provincial Forest.

Major projects included: liaison with all municipal offices to assess the status of names affected by railway line abandonment and to study the phenomena of naming rural roads; reports on specific name reviews for the proposed Kettle Stones Provincial Heritage Park, Birnie Creek/Snake Creek and Dauphin River; Cumulative Supplements to the *Gazetteer of Canada — Manitoba*, 1981 issued on April 30th and December 31st and, the brochure "Manitoba's Geographical Names", printed to meet the demand for more information on names and their research resources.

An increasing number of researchers are using the program records to supplement their research material. The data provided is often unique since duplicate archival records do not exist.

Activity	1986-87	1987-88
Requests for Toponymic Data	835	959
Geographical Name Decisions	91	42
Mapping Manuscripts/-Publications edited	78	93
Supplementary Name Location Maps compiled	54	21
Commemorative Names Certificates issued	191	273

Field Surveys

In conjunction with the branch mapping program and its integration objectives, retracement of the basic Dominion Land Survey fabric was concentrated south and west of Winnipeg.

Mapping control surveys covering in excess of 100 townships were completed in January assisted by a satellite positioning technology (G.P.S.) contract to establish horizontal control points.

Two field crews spent much of the winter retracing the limits of the Belair and Brightstone Sand Hills Provincial Forests with a line clearing crew provided by the department's regional office.

The survey projects requested by the Lands Branch under their cottage lot upgrading program were processed to the extent that 95% of all plans are at the registration stage.

In the Pasquia Lake Polder III area, the survey fabric and main drain plans were registered with the remaining lateral drains to be surveyed on a priorized basis.

Other major projects completed included the survey of the University of Manitoba property, subdivisions at Sherridon, Brochet and Wallace Lake, and the Big Grass River double dyke system.

Computer Services and Data Management

The section continued to support land referencing initiatives and property boundary mapping needs of various provincial and municipal agencies by providing computed positional values for property corners in urban and rural areas. In total 32,000 parcel corners were computed comprising some 13,000 lots and parcels, in such diverse locations as Winnipeg and Churchill. Attribute data such as parcel identifiers were included consistent with requirements for future communication with the provincial Land Titles data base. A continuous property boundary map data base will provide efficient management of the positional and attribute data generated.

Further development was undertaken on several major computer software systems to provide enhanced data capabilities, ease of access and improved efficiencies in positional data development and related data management. The enhancements are expected to improve computational productivity by 35%. The planning and development of systems to support the compution of positional values for some 1300 surveyed townships comprising in excess of 187,000 quarter-section land parcels was initiated. This system provides the land survey framework for the provincial topographical mapping program and forms a foundation for a rural landbased information system.

Two hundred new survey control markers within the city of Winnipeg and neighboring areas were integrated with the National Survey Control System. These support a Manitoba-Winnipeg initiative to establish a cohesive system of 4 surveys within the city for precise mapping and joint referencing needs.

The section responded to 253 requests of varying complexity for positional data and related information from several levels of government, industry, and the public. Exchange of data in digital format with agencies utilizing different mapping and referencing systems has been achieved, primarily with Manitoba Data Services, Manitoba Hydro and Manitoba Telephone System.

Liaison was maintained with the federal and provincial surveying and mapping agencies in the development of standards relating to national datum, positional computations and geodetic data interchange, to enhance the quality of data and its accessibility to all users.

Mapping

A three year program to establish an automated digital mapping system for the production of topographic, geographic and property boundary maps was completed. The system was built on an existing VAX/VMS 11/750 computer and three Wild stereoplotters. It now includes CARIS digital mapping software developed by Universal Systems Limited (USL), 2 micro VAX II, 3 photogrammetric workstations each comprised of a stereoplotter, a USL controller and a Tektronic colour graphics terminal. Two cartographic work stations have Altek digitizers, USL controllers and Tektronic colour graphics terminals, while another has only the Tektronic colour graphics terminal. A Wild flat bed plotting table and a Calcomp drum plotter complete the system.

Staff training was completed and output is expected to reach full production level in 1988-89.

Topographic Mapping

Topographic mapping of the Churchill area was undertaken and three 1:2,000 scaled maps of the community were scheduled for distribution in August, 1988. Five 1:10,000 scaled maps of Churchill and its environs will be available in early 1989.

The 1:10,000 topographic mapping program in Southern Manitoba was initiated with the acquisition of 6200 square kilometres of 1:30,000 scaled aerial photography covering the Winnipeg-Selkirk area. Data compilation began in January and the first digital and traditional maps will be available from this program during 1988-89.

Geographic Mapping

Geographic mapping services were provided to provincial government agencies and the public with a total of 127 projects completed. A sampling of projects included: 10 Community Boundary Maps, three Heritage Park Plans, a Photo Mosaic of Hecla Provincial Park, 23 Lake Depth Charts, four Certified Photo Mosaics and four Crop Risk Boundary Maps. In addition, 239 Commemorative Name Certificates were prepared for the Geographical Names Program.

Revisions or updates were made to six Designated Vehicle Route Maps, three Health 6 District Maps, 72 Wildlife Management Area Maps, the Hunting Brochure, the Oak Hammock Marsh Land Ownership Map, the 1:1,000,000 Provincial Base Map and the 1:500,000 Southern Manitoba Provincial Survey System Index Map.

Plan Drafting

Legal Plans of Survey, Township Diagrams and plan revisions were prepared to fulfill the branch's mandate in maintaining the legal survey framework.

Activities	1986-87	1987-88
Plans of Survey	175	165
Township Diagrams	19	29
Plan Revisions and Memorials	483	319

Map Distribution and Remote Sensing

Map Distribution

The map distribution network, established throughout Manitoba, was expanded into northwestern Ontario and the northern United States. Changes occurred in The Pas and Thompson outlets where map distribution services were transferred from 7 government offices to private business operations.

Activity	1986-87	1987-88
Number of Customers	12,789	13,496
Maps Distributed	52,255	53,993
New Photographs	12,464	6,868
Photomechanical Products produced	37,297	28,496

Remote Sensing Centre

Fifteen projects of varying size and complexity were carried out by staff with the major acquisition and attention given to the Crop Information System, a joint venture with the Canada Centre for Remote Sensing and the Canadian Wheat Board.

The Crop Information System (CIS) was officially launched at a ribbon cutting ceremony on October 22, 1987. The CIS, beginning with the 1988 crop year, will provide users with a quick and reliable method of acreage and yield assessments for major crops around the world.

The centre was awarded a mapping contract by Meadow Lake Sawmill Ltd., to map forest cover across the width of central Saskatchewan. The purpose of this project was to inventory stands of timber within the agricultural fringe zone 8 which have potential for commercial harvest. A total of 24 map sheets at a scale of 1:125,000 will be produced during 1988-89 from Landsat Multispectral Scanner data.

One of the Image Analysis Systems was upgraded from a 71 to 500 megabyte disc which allowed for greater capacity to produce data shortly after it arrives from the satellite receiving station.

The centre served the needs of 1479 customers and maintained its monitoring role in identifying new applications and developments of this technology for provincial use.

Water Resources

The Water Resources Branch provides short and long-term planning for the management and development of water resources in Manitoba; plans and develops construction and maintenance programs for provincial water control works; conducts studies and investigations related to the management and use of the water resources in the province; and provides engineering services to municipal councils and conservation district boards.

Water Management Services

Water Licensing and Approvals

The new Water Rights Act came into force on December 1, 1986 and the associated regulations were proclaimed on April 18, 1987. The new Act provided authority for the minister to remove unauthorized works that interfere with the flow of water, and instituted a licensing system for drainage works. The new regulations specify application fees for water rights licences for drainage and non-domestic use of water. It also provides a schedule of annual water use fees for industrial, municipal and other uses. Under the present regulations agricultural and irrigation uses are exempt from annual fees.

Brochures entitled "Obtaining a Water Rights Licence for Water Use" and "Obtaining a Water Rights Licence for Constructing Drainage Works" were prepared and printed. These brochures outlined the new Water Rights Act, the licensing system, the procedure for application for a Water Rights Licence, and the user : fee schedule. The brochures have been forwarded to cities, towns, municipalities and local government districts throughout the province to communicate the importance of responsible water management under the Water Rights Act.

A comprehensive review was undertaken to develop a method to licence users along the La Salle River which had previously been fully allocated to existing licensees prior to the installation of a permanent pumping diversion from the Assiniboine River. Other fully allocated watercourses such as the Boyne and Souris Rivers were reviewed.

An extensive action plan was initiated to effectively process the backlog of Water Rights Licence applications with concern to maintain the established licensing procedure. Many outstanding licence applications were processed, some were rejected, and others were held pending receipt of further information from the applicant. Licence applications were generally processed on a first come, first serve basis and the bulk of the licenses issued during the fiscal year were the result of applications submitted in previous years. Several licence applications deemed to require immediate attention were also processed.

A number of drainage and flooding complaints were investigated in response to written communication to the minister or the branch. All the complaints investigated were complex and unique in circumstances. Each case was assessed individually with the Act and common sense applied in resolving the complaint.

Five Ministerial Orders were issued for removal of unauthorized works. Compliance with the orders was achieved in three cases.

The terms and conditions of the new Act and Regulations led to difficulties in dealing with some licence applications. Recommendations to amend the Act and Regulations to better serve the management and use of the water resources of the province were prepared.

The construction of Manitoba Hydro's Limestone Generating Station continued in 1987. The tailrace channel was excavated and fill was placed for the north dam. Over 300 thousand cubic metres of concrete were placed. Altogether, almost 75% of the total concrete requirement has been placed.

Hydroelectric Power Generation

	1986	1987
Water Power Rentals (Rates were increased on April 1/87)	$31,588,027.50	$31,447,461.40
Land Rentals	473,082.38	473,082.38
Total	32,061,109.88	$31,920,543.78
Total Power Production (kilowatt-hours) Associated with the above charges	23,925,281,540	19,393,358,260

Water Supply for Existing Power Developments

River	Average Flow	Percent of Long-Term Avg.
Winnipeg River (Slave Falls)	516 m^3/s	61.4%
Nelson River (Kelsey)	1684 m^3/s	74.5%
Saskatchewan River (Grand Rapids)	498 m^3/s	82.9%

Water Supply for Existing Power Developments

Lake	Approved Range	Levels		Outflows	
		Low	High	Low	High
Lake of the Woods	321.9 m to 323.5 m	May 322.28 m	Aug. 322.64 m	July 99.3 m^3/s	March 401 m^3/s
Lac Seul*	353.0 m to 357.2 m	March 354.59 m	Jan. 355.85 m	June 39.0 m^3/s	Jan. 387 m^3/s

** The flow into Lac Seul through the Lake St. Joseph Diversion averaged 64.6 m^3/s in 1987.*

Requests for Use of Crown Land, 1987-88

Nature of Requests	Requests	Parcels Involved
Lands within Water Power Reserves	63	76
Lands within the Operation of Water Power Licences	54	61
Crown Land Outside of Water Power Reserves/Licences	204	287
Total	321	424

Water Power Development to December 31, 1987

Owner	River	Plant Name	Normal Head in Metres	Installed Capacity in Megawatts	
				Present	Ultimate
City of Winnipeg	Winnipeg	Pointe du Bois	14.02	78.33	78.33
City of Winnipeg	Winnipeg	Slave Falls	9.14	71.62	71.62
Manitoba Hydro	Winnipeg	Seven Sisters	18.59	149.20	149.20
Manitoba Hydro	Winnipeg	Great Falls	17.07	125.33	125.33
Manitoba Hydro	Winnipeg	Pine Falls	11.28	85.05	85.05
Manitoba Hydro	Winnipeg	McArthur	7.01	59.68	59.68
Manitoba Hydro	Laurie	No. 1 Site	16.76	5.22	5.22
Manitoba Hydro	Laurie	No. 2 Site	16.76	5.22	5.22
Manitoba Hydro	Nelson	Jenpeg	7.32	167.10	167.10
Manitoba Hydro	Nelson	Kelsey	15.24	219.32	313.32
Manitoba Hydro	Nelson	Kettle	30.02	1,253.28	1,253.28
Manitoba Hydro	Nelson	Long Spruce	24.38	1,007.10	1,007.10
Manitoba Hydro	Saskatchewan	Grand Rapids	38.10	447.60	447.60
Total				3,674.05	3,768.06

Activities in Administering The Water Rights Act, 1987-88

	Surface Water	Ground Water
Applications filed for expired licence renewal	25	45
Other applications filed	37	28
Licences completed and sent for acceptance	55	47
Actual licences issued	(43)	(20)
Domestic (including stock watering)	4	0
Agricultural	1	0
Municipal	0	1
Industrial (including mining operations)	2	0
Irrigation (including wild rice production)	26	10
Air cooling and heating	0	8
Flood control	4	0
Fish raising	0	1
Fur trapping	6	0
Complaint investigations	12	3

Water Conservation and Development

Reservoir Regulation

All major reservoirs were replenished by the 1987 spring runoff. Controlled dams were operated to maintain reservoir levels within their normal ranges. Lake Manitoba remained within the permissible regulated range of 247.15 m to 247.76 m. Dauphin Lake peaked at 260.63 m following the spring runoff and receded gradually to near the lower limit of 260.13 m by December. Lake of the Prairies was drawn down to 424.92 m prior to spring runoff and peaked at 427.83m.

Oak Lake/Plum Lakes

The Oak Lake/Plum Lakes wetlands complex, situated in the southwestern corner of the province, has been the subject of conflicting interests for the past few decades. One of the main difficulties encountered in trying to solve the conflicts between agricultural and wildlife interests has been the complex topography and hydrology of the numerous marshes known as Plum Lakes. A survey of this area was completed and detailed mapping initiated. Difficulties experienced in completing the complex mapping process have delayed the development of management options until the summer of 1989.

Rat River Wetland Development

The Water Resources Branch participated in an ongoing multi-disciplinary resource study, along with representatives from Ducks Unlimited Canada, the Wildlife Branch, Manitoba Agriculture and Manitoba Municipal Affairs, to investigate the feasibility of a wetland development project in the area of the Rat River Wildlife Management Area in southeastern Manitoba. Wetland development options were investigated that would enhance the area for wildlife while at the same time alleviating a long-term flooding problem affecting landowners along the Rat River and Joubert Creek systems.

Grace Lake Regulation

Grace Lake, located immediately east of The Pas, is regulated by a control structure in a dyke which extends along two sides of the lake. Seepage through the dyke has created problems for adjacent landowners. A study that identified measures to control the seepage or reduce its impact on adjacent lands recommended a phased approach, starting with the adoption of a lower range of regulation. A slightly lower range of regulation and revised operating rules were implemented in the summer of 1987. Because of limited 1987 spring runoff, water levels remained below the proposed range. The new operating rules were, therefore, continued.

Whiteshell Lakes — Water Level Regulation

In the past, outflows from several lakes in the Whiteshell River system have frequently been inadequate to allow effective fish spawning during the spring run-off period. A study was initiated in January, 1987 to improve the regulation of these lakes to enhance fish spawning. A preliminary operating plan was A prepared in March, 1987 for regulating Jessica Lake and White Lake during April and May of 1987. The plan was designed to provide suitable flows and gradual changes in flows on the Whiteshell River while maintaining the lakes within acceptable ranges. Modifications to the plans continued as results were evaluated. The plans have yet to be tested in moderate or high flow conditions.

Manitoba Escarpment Storage Study

Together with PFRA and Manitoba Agriculture, a study continued into the identification of the potential benefits and costs of developing headwater storage along the Manitoba Escarpment from the Porcupine Hills to the Pembina Hills. Of the 123 potential dam sites investigated, it was determined that only 12 sites would be effective in reducing flood and erosion damages. Preliminary indications were that three of these sites offered the greatest potential. One of the sites is on the North Duck River upstream of Cowan, one is on South Tobacco Creek west of Miami and the third potential site is on Spring Creek near Arden.

Based on a preliminary assessment, it does not appear that the proposed headwater storage dams will have any significant effects on related resources. It is expected that the first phase of the study will be completed in mid-1988. A more detailed examination of specific storage sites showing the greatest potential may follow.

Southwest Regional Water Development Study

In cooperation with PFRA, a comprehensive study of the water development opportunities and options for meeting increased demands in the southwestern portion of Manitoba was undertaken. Present and future water demands in the study area, as well as an assessment of the need for water retention facilities were determined as part of this study.

Canada-Manitoba Interim Subsidiary Agreement on Water Development Drought Proofing Studies

Under contract, the Department of Agricultural Economics of the University of Manitoba has developed a series of mathematical models which have been used to simulate Manitoba's agricultural economy with and without the imposition of drought conditions. A series of scenarios consisting of potential drought proofing measures were tested and assessed using the mathematical models. Among these scenarios was the adoption of farming practices which could lead to improved soils moisture conditions through the greater retention and conservation of snow cover to facilitate the production of winter wheat, the subsidization of forage transport, the establishment of feed banks and the establishment of large scale irrigation projects. The results of this work were being considered in the formulation of a soil and water conservation strategy for Manitoba.

Water Management Investigations

The Assiniboine South-Hespeler area is a 5000 square kilometre predominantly agricultural region of Manitoba bounded on the north by the Assiniboine River, on the east by the Red River, on the south by the International Boundary and on the west by the Pembina Escarpment. The area has limited supplies of usable groundwater and the intermittent natural run-off of small streams rising in the Pembina Escarpment is the only source of surface water. The full agricultural potential of the area has not been realized because of seasonal dry spells and occasional droughts. Furthermore, towns and industries have difficulty in locating satisfactory water supplies and there are few opportunities for water based recreation in the area. In order to examine alternative water supply projects to enhance economic development within this area, a study was undertaken under the provisions of the Canada-Manitoba Interim Subsidiary Agreement on Water Development for Regional Economic Expansion and Drought Proofing.

The study included examination of eight different alternatives for augmenting water supplies in the Assiniboine South-Hespeler area. Four sources of water were considered: the streams of the Pembina Escarpment; the Pembina River; Lake Manitoba; and the Assiniboine River. Of the alternatives capable of satisfying all potential water demands, the least costly proposal would be a dam on the Assiniboine River near Holland, Manitoba. Water from the reservoir would be diverted to the project area by a pumping station on the Assiniboine River north of Rathwell and then conveyed southward in a main canal running along the toe of the Escarpment. The easterly flowing tributaries of the Red River would be improved to provide a network of distribution channels and six additional laterals would have to be constructed to serve the upper region of the Boyne River and the area north of the Boyne River. Total cost of the dam and reservoir, pumping facilities and distribution system was estimated at $363 million.

The Management Group recommended a phased development option of the least costly proposal outlined in the report. The report was submitted to the Minister of Natural Resources and the Minister of Finance on March 11, 1988.

Assiniboine River Tributaries Study

The Assiniboine River is the most stable source of water supply for the area along and south of the Assiniboine River, particularly during drought periods. Major water storage projects such as the Lake of the Prairies on the main stem of the Assiniboine River, and the Lake Wahtopanah its tributary, the Little Saskatchewan River, have increased the minimum firm flow. However, even with these works in place, the Assiniboine River's ability to meet the ever increasing demands being placed upon it, particularly in the Brandon-Portage la Prairie corridor, is extremely limited. The recently completed LaSalle River Enhancement Project together with proposals such as the Portage Diversion Irrigation Project and the Boyne River Enhancement Project, would if implemented, probably exceed Assiniboine River dependable flows in this reach. Further enhancement of Assiniboine River flows is required before substantial amounts of additional water can be withdrawn to meet growing demands.

Many studies have been conducted over the past several years to identify potential storage development projects for augmenting water supply along the Assiniboine River and its tributaries. The purpose of proposed flow augmentation schemes would be to enhance Assiniboine River flows for increased consumptive E use of water at, and downstream from, the identified storage sites.

Terms of reference were prepared for a study to review and update previous water storage development projects identified on Assiniboine River tributaries. These include the Souris River, Qu Appelle River, Birdtail Creek, Shell River and Little Saskatchewan River. This investigation will also include reviewing preliminary designs of the previously identified water storage works and updating project costs.

A first draft for review purposes was expected to be completed in June, 1988 and a final report was expected to be completed by September, 1988.

Dominion City Dam

The Dominion City Dam on the Roseau River was built in 1957 to supply water to Dominion City. The reservoir has also been used for stock-watering and recreational purposes such as sportfishing. When spring run-off is heavy, the dam is completely submerged and spawning fish can migrate upstream past the dam. When flows are insufficient to submerge the dam, it becomes an obstacle to fish movement. This can be prevented, however, by removing some stoplogs from the dam to permit fish passage.

Dominion City will soon be connected to a regional water supply pipeline from Letellier, and consequently this reservoir will not be needed for municipal water supply purposes. The Water Resources Branch assessed options for the future operation of the dam, with a view to minimizing maintenance and operating costs without adversely affecting users of the reservoir. Advice has been sought from the Fisheries Branch and the R.M. of Franklin in developing new operating guidelines for the dam. The dam was operated normally pending completion of the new plan.

Manitoba Water Sourcing Study

As a result of the drought experienced in 1984 that revealed on-farm water shortages and the need to increase the firm annual water supply on the southern prairies, it was agreed by Manitoba that PFRA initiate

a study of the on-farm water supply situation. The overall water sourcing study is divided into two phases.

The purpose of Phase I, which is now finalized, was to identify water deficient areas which do not have access to secure alternate sources for either on-farm supply or community/group projects. Included in this phase were inventories of existing and potential drought proof water sources, eg. reservoirs, on-farm dugouts, dugouts filled by pumping, as well as an inventory of the cattle population within specific study areas. These inventories, along with other compiled information, will be used to identify problem areas where water sources would be deficient during drought conditions.

The Phase II study continued in the evaluation of proposals to alleviate specific problems identified in this Phase I report, eg. assess the feasibility of improving existing water sources, construction of new surface water sources and additional development of groundwater aquifers. Phase II for Manitoba will contain an on-farm water strategy for five areas; Red River, Plumas, southwest Manitoba, Dauphin-Gilbert Plains and the Minnedosa area.

A report is expected by the end of June, 1988.

Pipestone Creek

Flows on Pipestone Creek are regulated by the Moosomin Dam in Saskatchewan. Due to high channel losses and a large number of natural channel blockages, releases from the dam have often been inadequate to meet Manitoba's requirements. Pipestone Creek is used for stockwatering purposes in Manitoba and also provides water for the Village of Kola.

A task force has been established with one member each from the Water Resources Branch and the Saskatchewan Water Corporation to discuss problems with water allocation and the operation of the dam. Those discussions were expected to result in an agreement which will meet Manitoba's requirements while remaining acceptable to Saskatchewan. A preliminary report was being reviewed.

Ste. Rose Dam

In April, 1987 the R.M. of Ste. Rose requested that the Ste. Rose Dam be permanently lowered to facilitate construction of a low level crossing on the Turtle River upstream of the dam. Ste. Rose Dam was constructed to ensure a dependable municipal water supply for the Village of Ste. Rose du Lac. However, the Village of Ste. Rose has switched to a groundwater source for its municipal water supply requirements and the reservoir has become redundant for this purpose.

There have been some complaints of groundwater shortages in the proximity of the new municipal wells, and also complaints of groundwater shortages near the reservoir as a result of low reservoir levels. Some of these problems have been resolved; however, the permanent lowering of the reservoir would cause shortages in wells founded in shallow alluvial deposits adjacent to the reservoir.

Because of the potential impacts on shallow alluvial wells and the fact that the impoundment would not be available for use as a water source during drought or emergency conditions in the future, an information paper was distributed and comments and input were solicited from the various interests. A synthesis was to be prepared and a meeting held with all concerned to discuss the proposal prior to making any final decisions.

Bellsite

Local farmers suffering excessive crop losses in the Bellsite-Novra area have requested improved drainage. A study of the existing drainage system was undertaken to assess the problems, identify the specific need for additional drainage and to develop a systematic plan for any recommended reconstruction based on land use, soil capability, and economic considerations. The study report was expected to be completed in the summer of 1988.

Garland River Area Agricultural Flood Control

Landowners along the Garland River and Wellburns Creek in the R.M. of Ethelbert, R.M. of Mossey River and the L.G.D. of Mountain have experienced a long history of flooding and erosion problems related to excessive spring run-off or severe summer rainstorms. Local interests favour government action to solve the problems affecting both the Garland River area and the Wellburns Creek area by constructing a controlled diversion from the Garland River to Lake Winnipegosis. In early 1988, at the request of the branch, PFRA initiated a technical feasibility study of that diversion.

Riviere aux Marais Drainage System

A study was underway to determine the economic feasibility of drainage improvements to the portion of the Riviere aux Marais drainage system that is located in Manitoba. The study involved assessing the current capacity of the system, cataloguing the soils, evaluating land use and land capability, providing preliminary design and cost estimates for the necessary drains, and determining the benefits of the drainage improvements. The study was expected to be completed in the summer of 1988.

Rural Municipalities of Shellmouth and Russell Interprovincial Drainage Problems

Agricultural drainage activities in the Saskatchewan rural municipalities of Langenburg and Churchbridge have resulted in increased flows downstream. Farmland and municipal drains and road crossings in the rural municipalities of Russell and Shellmouth in Manitoba have been most affected. In 1980, the Prairie Provinces Water Board initiated a study that identified the impacts. As part of this work, Manitoba completed a study in 1986 identifying the approximate costs of works necessary to convey the additional flows in the

drains and through the crossings. Manitoba held discussions with Saskatchewan and the Manitoba municipalities to help resolve the issue.

Fork River Watershed

The Fork River Watershed experiences many water-related problems typical of a subescarpmental area, such as flash flooding and erosion. In addition, the Loon Lake Marsh, which helps attenuate flood peaks and reduce sediment loads that emanate in the escarpment, is a concern to some local residents because of its impact on nearby agricultural land. A study to develop a watershed water management plan was initiated in 1987, and was expected to be completed in late 1988.

Other Project Studies

A number of other agricultural drainage and flood related project studies were undertaken to guide the planning of provincial drain and municipal drain projects. These projects included:

- Navin Drain (City of Winnipeg & R.M. of Springfield)
- Whitemouth River (L.G.D. of Reynolds)
- Jarosz* Drain (R.M. of Minitonas)
- Portage Diversion East Outside Drain
- Boundary Drain (R.M. of Grey & Portage la Prairie)
- Mud Lake Drainage System (R.M. of Siglunes & L.G.D. of Grahamdale)
- Mink Creek Drainage Development (R.M. of Ethelbert)
- Station* Road Drain (Cooks Creek Conservation District)
- Steeprock River (L.G.D. of Mountain)
- Matychak* Drain Outlet (R.M. of Brokenhead)
- Benito (R.M. of Swan River)
- Saints* Lake Area (North Manitoba Interlake)
- Wardrops* Creek (R.M. of Lac du Bonnet & L.G.D. of Alexander)
- Local name

Special Services

The Special Services Section provided the following services during 1987:

- project management of assigned construction projects — Washow Bay and Pasquia Polder III;
- drafted procedures and reviewed policies, and legislation, regarding the new Environment Act, pertaining to the Water Resources Branch;
- represented the Branch on Resource Allocation Working Group.
- prepared Order-in-Council documents designating or abandoning Provincial Waterways;
- provided geotechnical advice, including field investigation for subdivisions and Crown land leases and purchases;
- updated the inventory of all provincial water control work;
- maintained data on unit construction costs, for estimating purposes;
- provided draughting services for Water Resources Branch projects;
- processed applications authorizing construction of various structures within Designated Reservoir Areas;
- prepared and distributed an Engineer's Manual outlining Water Resources Branch policies and procedures
- processed applications authorizing various agencies, or the general public, to construct any works, on, over, or across a Provincial Waterway; and
- the annual report on the maintenance and operation of primary dykes in the City of Winnipeg was prepared by the Dyking Commissioner.

Canada-Manitoba Subsidiary Agreement on Agri-food Development

Pasquia Polder III Project

The Pasquia Polder III Project was being developed jointly by Manitoba Natural Resource and PFRA. The project will cost approximately $4.9 million, involving the construction of two large pumping stations and some 60 kilometers of drains. The project would result in the development of about 95 square kilometers of land for agricultural purposes. The project has been delayed, pending resolution of environmental concerns raised by The Pas Indian Band, as well as provincial financial restraints. The project was re-examined for various downsizing options in order to reduce the initial capital cost and pumping costs.

Washow Bay Watershed Agricultural Enhancement Project

In recent years farmlands in the Washow Bay area have experienced serious agricultural crop damage due to flooding or excess soil moisture resulting from summer rainstorms. Therefore, in order to provide a long term water management system, and promote stable and viable agricultural production, the province (Natural Resources and Agriculture) and the R.M. of Bifrost signed a Memorandum of Understanding, regarding the Washow Bay Drainage Project, in July, 1987. The project involved improving the existing drainage through a system of drains, dykes and portable pumps, at a cost of approximately $4.8 million. The project is presently comprised of three phases, with an additional fourth phase possible, constructed over approximately a ten year period, with completion scheduled for the spring of 1998. Approximately 6 kilometers of drains were reconstructed in 1987. Culverts and portable pumps, for Phase One, were also purchased in 1987. Further drain reconstruction, together with land acquisition, was scheduled for 1988.

North Duck River
A headwater storage project was evaluated that would complement on-farm soil and water management activities in the North Duck River area. A headwater storage dam, including dyking, has been proposed to reduce the severity and frequency of flooding along the lower reaches of the North Duck River. A design report outlining the design features and a detailed cost estimate of the proposed dam has been completed. This report was being reviewed by branch personnel, in order to confirm the technical feasibility of the project. The Resource Allocation Working Group has cleared the environmental aspects of the project.

Flood Damage Reduction

Canada-Manitoba Flood Damage Reduction Program
Under the Mapping Agreement signed on December, 1976, flood risk areas are mapped and designated to control future development. A public information program is undertaken to inform agencies and the public of the flood risk. Under this agreement 13 communities had been designated prior to this year, including the cities of Winnipeg and Brandon. During 1987-88 the flood risk areas in Arborg and Riverton along the Icelandic River and Fisher Branch along the Fisher River were designated on November 9, 1987. The base maps for The Pas, Virden and parts of Winnipeg was completed. A study to identify the flood risk areas along Omands Creek within the City of Winnipeg were completed. The floodway and floodway fringe areas between Kilkenny Drive and the Red River from the South Perimeter Highway to Radcliffe Road in the City of Winnipeg were revised. The floodway and floodway fringe areas between River Road and the Red River from the St. Amant Centre, River Road to Bishop Grandin Boulevard within Winnipeg were also revised.

Under the Studies Agreement signed on December 20, 1976, studies have been undertaken to determine the best measures to reduce or prevent flood damage to existing development. The first drafts of the reports on studies for Morden and Riverton were completed. Under the Canada-Manitoba Flood Damage Reduction Program the costs are shared equally between the federal and provincial governments.

Manitoba Flood Protection Projects Agreement
Under this agreement signed on March 10, 1983, the dyking systems at Emerson, Letellier, Dominion City, St. Jean Baptiste, Morris, Rosenort and St. Adolphe were to be upgraded to the one percent flood protection level. On May 22, 1985 the agreement was extended and additional funding was authorized to include flood protection for Ste. Rose du Lac and the Souris water treatment plant. Total funding provided under the agreement amounts to $6.1 million and is cost-shared 55% provincial and 45% federal. During the 1987-88 fiscal year the required flood protection works at Letellier, St. Jean Baptiste, Morris, Rosenort and Brunkild were completed. The design of the works to protect the Souris water treatment plant was completed and the necessary right-of-way was obtained. The design of the flood protection works at Ste. Rose du Lac was complete. The acquisition of the right-of-way was delayed due to the call by the Minister of Natural Resources for a Public Inquiry under the Manitoba Expropriation Act because of the number of objecting landowners. The Inquiry was held during the week of September 14-18, 1987 with the Inquiry Officer finding that the taking of the land was just and fair. However, some landowners applied to the Court of Queen's Bench to have the project quashed. The court hearing was held on March 4, 1988 with no decision handed down by the court as of March 31, 1988.

Provincial Flood Damage Reduction
During the spring of 1987, the Red River Floodway, the Portage Diversion and the Shellmouth Dam were operated to reduce flooding along the Assiniboine and Red Rivers.

Through the application of Provincial Land Use Policy No. 11 which was enacted by Order-in-Council in November, 1980 under the Planning Act, the province exercises control over development in areas subject to flooding, erosion, river bank instability, landslides and subsidence. During 1987-88, 610 subdivision applications were reviewed and input was provided for two planning documents. Five draft planning documents and 78 zoning by-law amendments were reviewed. After the 1979 Flood, the entire Red River Valley from Emerson to Winnipeg was designated as a flood area under the Water Resources Administration Act. Under the Act and Manitoba Regulation 179/79, any person wishing to build or erect a structure in the designated area must first obtain a permit from the Water Resources Branch. The permit requires that any structure to be built or erected shall be floodproofed to prevent damages up to the one percent flood level. Fifty-eight permits were processed during 1987-88. Seventy-seven compliance checks were carried out.

Amendments to The Water Resources Administration Act were passed but not proclaimed. These amendments, along with amendments to the regulations, will make the floodproofing requirements in the Red River Valley the same as those under the City of Winnipeg Act and respective regulations. Under Section 494.09 of the City of Winnipeg Act, the Minister of Natural Resources may make an order varying the floodproofing criteria established by Regulation 9/85. Eleven applications for variances were processed during 1987-88.

The province approved the construction of a diversion around the Town of Gimli based on a combined project consisting of land drainage and flood protection.

Manitoba will be responsible for all costs associated with agriculture drainage and 90% of the flood protection costs. The Town and R.M. of Gimli have signed an agreement to contribute 10% of the flood protection costs and be responsible for mowing the grass along the diversion. The final design for the diversion was completed and purchase of the required right-of-way was initiated during the 1987-88 fiscal year.

Hydrotechnical Services

Hydrology

Hydrologic Monitoring
Water level data was gathered at hydrometric stations throughout Manitoba to assist in the operation of water control structures, for flood forecasting and runoff monitoring and to gather information for hydrologic investigations. Included was an intensive monitoring of Rat River flows and overflows near Zhoda in the spring and summer of 1987. The data for 41 of the hydrometric stations was contributed to the federal Water Resources Branch for publication in their 1988 Annual Surface Water report. A further 323 flow, level and sediment stations were operated by the federal Water Resources Branch under the terms of the Canada-Manitoba Agreement for Water Quantity Surveys. All recorded data was entered into the branch's computer for use in hydrologic studies.

Data on water levels and streamflows for 27 lakes, six reservoirs and 29 river stations was compiled and distributed weekly to several hundred users. This included the operation status on six controlled lakes and reservoirs.

Isohyetal maps of storm precipitation and monthly precipitation were prepared and distributed after each storm and near the end of each month.

Hydrologic Studies
Climatological and hydrological studies and data were provided at the request of clients. Climatological data included provision of statistics on precipitation amounts and rates, wind speeds and evaporation, while studies involved determination of the effects of these parameters on run-off, streamflow and lake levels. Hydrological studies included the hydrology of the Garland River Basin and of Big Lake near The Pas, an assessment of Town of Carman flood reduction alternatives, and an estimation of the impact of the proposed Rafferty and Alameda Dams in Saskatchewan on flows in the Souris River in Manitoba.

Operational River Flow Forecasting
The River Forecast Centre prepared daily flood information sheets containing water levels and river flow forecasts for various watersheds in Manitoba during the 1987 spring run-off period. Information was provided to the news media and to the public regarding forecasted run-offs and high river levels.

Throughout the year, inflow forecasts were prepared for various lakes and reservoirs where control structures are operated by the province.

During February and March, 1988, spring runoff outlooks were prepared for the Red River, the Assiniboine River, the Souris River and for numerous smaller watersheds in southern Manitoba. A map showing predicted run-off for the entire province was also prepared. These forecasts were distributed to the media as well as to all municipalities, cities, towns, villages, local government districts and Indian bands in Manitoba and to flood fighters and government officials. Spring inflow forecasts were also prepared for seven reservoirs and nine lakes where outflows are controlled by the department.

River Forecasting Development
Development of improved water supply and river flow forecasting procedures continued. New procedures were initiated to better forecast inflows to lakes in Whiteshell Provincial Park. This will facilitate better regulation of these lakes for recreation and fish spawning. Under the Canada-Manitoba Agreement Respecting Flood Forecasting, preparation of a formal report on run-off modelling studies was nearing completion and a project to improve river forecasting on the Pembina River was begun. A weather radar monitor and several real-time hydrometric gauges were also installed under this agreement.

Hydrogeology

Aquifer Administration
New initiatives in the Hydrogeology Section included participation in groundwater source heat pump demonstration projects, refinements to the computer processing of the groundwater data, refinements to the regulations under the Groundwater and Water Well Act, and participation in the development of a national groundwater program and policy. All activities of the section were interrupted for a three month period following an airplane crash into their building on July 31, 1987. Complete evacuation of the workplace resulted while major repairs to the building were effected.

Aquifer Data
Water well contractors submitted 2800 driller's reports during 1987-88. In addition, 460 groundwater monitoring stations were in operation from which data on water levels and water quality were obtained. All groundwater data was incorporated into a permanent storage and retrieval system for the province.

One hundred and fifty-four groundwater availability and 65 groundwater pollution hazard appraisals were prepared in response to specific requests. Numerous telephone or written inquiries about groundwater condi-

tions in various areas were responded to with specific resource information and advice. The second annual report of Manitoba groundwater statistics and information was issued. A report on groundwater drought sensitivity of southern Manitoba and aquifer maps of southern Manitoba were also completed.

Aquifer Definition
The regional groundwater availability map study for the Dauphin Lake 1:250,000 map sheet area was published. This forms the 11th 1:250,000 map sheet publication, completing coverage of agro-Manitoba. Updating of earlier studies, beginning with the 1972 Neepawa map sheet area, was initiated in 1986-87 but the draft updated map sheets were destroyed by the aircraft accident. Updating will be undertaken again beginning in 1988-89. A study of the causes of excess uranium in groundwater in some wells in southeastern Manitoba was completed. Work continued on a major summary study of the hydrogeology of the carbonate rock aquifer in Manitoba. Efforts in 1987/88 concentrated on geochemistry and fracture patterns in the aquifer and a major stratigraphic high yield aquifer was identified.

Aquifer Capacity
Digital computer modelling of the most developed sub-basin of the Assiniboine Delta Aquifer was undertaken. Work was also continued on developing digital computer models for the second most developed sub-basin of the Assiniboine Delta aquifer.

Monitoring and evaluation of the water supply capability of the Winnipeg, Selkirk, Assiniboine Delta, Oak Lake, Winkler, Glenora and Miami aquifers continued. Special attention was given to the water level and thermal effects caused by the stoppage of groundwater pumping at the Canada Packers Plant. Development work was undertaken on creating analytical and numerical groundwater models for determining the thermal energy of the Carbonate aquifers under Winnipeg.

Technical input was given, through membership on the Technical Committee, to the Groundwater Source Heat Pump Application Demonstration Program being undertaken by the Manitoba Industrial Technology Center. Similarly, advice was provided to the Mines Branch in regard to permits for industrial minerals exploration drilling and hydrogeologic aspects of the proposed potash mine at Russell, Manitoba.

Aquifer Modification
Field investigations involving well inventory, water quality testing and borehole logging were carried out in an area on Rebeck Road north of Birds Hill in an attempt to define the cause of a water quality deterioration problem associated with domestic water supply wells. Additional field investigations have been proposed in an attempt to resolve this problem. A similar problem on Henderson Highway, north of Lockport resulted in a similar preliminary investigation. Additional field investigations are also planned for this area.

Possible water supply problems associated with the implementation of the proposed Ste. Rose Flood Protection plan were investigated. Plans have been formulated for further work once the flood protection scheme has been finalized.

A complaint regarding a change in groundwater levels caused by installation of weirs in Wilson Creek was investigated. This resulted in the installation of an automatic water level monitoring station adjacent to the most recent weir site in order to collect the necessary information.

The hydrogeologic circumstances were investigated for a number of different locations in the Phase I area of the Washow Bay Water Management Project. In particular, conditions were evaluated with regard to possible groundwater discharge into the Blind Bay Drain.

Investigations were carried out to determine the necessity of aquifer modification on a number of drainage systems. These included Edie Creek Drain, Dubas Creek, and Intermunicipal Drain.

Periodic inspections were carried out on aquifer modification projects at Ross Creek and South Lateral Drain to determine the extent of icing problems.

Summary of Water Control Works, 1987-88

Program	Region					Total
	Interlake	Eastern/ Northeastern	South Eastern	South Western	Western/ Northwestern	
Maintenance of						
— Water Supply & Conservation Facilities	$ 11,520.05	$ 17,037.54	$ 37,337.87	$10,832.80	$ 134,132.17	$ 210,860.43
— Flood Damage Reduction	215,918.06	117,915.79	78,309.67	—	13,736.16	425,879.68
— Land Drainage	896,153.45	202,843.76	1,292,115.05	37,772.24	737,014.14	3,165,898.64
Removal of Excess Rainfall From Agricultural Land	158,491.26	199,949.32	188,003.80	—	17,977.45	564,421.83
Bridge Replacement Program	178,651,65	92,040.36	160,191.40	—	99,158.16	530,769.57
Washow Bay Agricultural Enhancement Proj.	474,953.00	—	—	—	-	474,953.00
Pasquia Polder III	—	—	—	—	165,698.82	165,698.82
Upgrading Town Dykes	—	—	200,441.64	17,456.13	496,577.32	714,475.09
Escarpment Agricultural Flood and Erosion Control	—	—	—	—	147,319.10	147,319.10
R.M. & Town of Gimli Flood Protection	1,150.00	—	—	—	—	1,150.00
Cooks Creek Agricultural Activity Enhance	—	336,031.92	—	—	—	336,031.92
Grandview Water Supply Dugout	—	—	—	—	3,782.19	3,782.19
Total	$1,936,837.47	$965,818.69	$1,957,127.43	$66,061.17	$1,815,395.51	$6,741,240.27

Wildlife

This branch develops and implements management programs to ensure the wildlife resource is passed on in at least as vigorous a state as it was received by the present generation; delivers programs that provide for the subsistence, commercial and recreational use of the wildlife resource; implements programs to alleviate wildlife damage to people and property; and promotes the use of wildlife for scientific and educational purposes.

Wildlife Management Programs

Wildlife Education

The 1987 National Wildlife Week focussed public attention on the value of wildlife as part of a national program to celebrate the centennial of Wildlife Conservation in Canada (the celebration marked the establishment of the nation's first migratory bird refuge at Last Mountain Lake, Saskatchewan in 1887). Based on the theme "Celebrate our Wildlife Heritage" the province's working group organized a doodle poster, free-style poster and prose contest for students in grades three to eight. Over 4,000 students participated in the contest; another 20,000 students completed doodle posters outside of the contest. Winning entrants received prizes of wildlife books, great gray owl posters and 35 mm cameras (provided by Black's Cameras) from the Minister of Natural Resources at an awards ceremony in Winnipeg. Manitoba's working group also produced 20,000 copies of a great gray owl colouring page and distributed 3,000 education booklets to Manitoba educators. Wildlife displays involving some 20 wildlife groups were set up in Winnipeg, Brandon, Dauphin and Portage la Prairie reaching an estimated 200,000 people.

Project Wild grew in popularity in its second year of operation. The program's coordinator conducted 16 one-day workshops involving 360 educators, and delivered 20 informational presentations to 225 teachers. As a means of measuring the effectiveness of the program a user survey was initiated, revealing that the majority of instructors incorporated Project Wild messages into their classroom lessons. In 1987-88 Manitoba Education approved the program for use as supplemental material, and it was recommended by the Parkland Education Council.

The distinctive character of Wildlife Management Areas continued to appeal to growing numbers of Manitobans and tourists. Oak Hammock Marsh remained the most heavily used area with annual visitations of 68,000 people. Seasonal naturalists continued to tour school and special interest groups through the area, spring through to fall. They also promoted marshlands through shopping mall exhibits during the summer months. Approximately 14,000 people were contacted through mall displays, and 3,000 were taken on tours of the marsh. A habitat photo display and marshland diorama were installed in the information centre, completing the second of three phases of development. Branch staff kept area residents apprised of marsh programs and developments through a newsletter published twice a year. Resident interest in area programs remained high with farmers participating on the Oak Hammock Marsh Working Group. Area residents organized the second annual Oak Hammock Day Picnic and Dance, attracting an estimated 250 people. At the Narcisse Wildlife Management Area, approximately 5,000 people visited the world renowned snake dens. A seasonal naturalist took school groups on guided tours of the area and answered public inquiries. A map of the ski-trails of the Brandon Hills Wildlife Management Area was produced and made available to cross-country skiers in the Brandon area.

Wildlife displays were set up and staffed at some 30 events in ten different communities throughout the year. Two new displays were produced highlighting Manitoba's Wildlife heritage and tall grass prairie. A new Conservation Comment was produced on the goals of Manitoba's conservation organizations as was the Five-Year Report to the Legislature on Wildlife (year ending March 31, 1987). Three 30 minute T.V. shows were produced in conjunction with Greater Winnipeg Cablevision on attractions at the Fort Whyte Centre, projects entered in the Manitoba Schools Science Symposium, and ways to attract wildlife to your backyard.

The Minister of Natural Resources presented wildlife awards to 19 Manitobans in recognition of dedicated service in the field of wildlife management. The fouraward category program acknowledged Manitoba residents, non-residents, conservation organizations and corporations who have contributed to the wellbeing of the province's wildlife resource.

Throughout the year staff spoke to numerous wildlife associations, naturalists groups, business organizations, service clubs, students and organized youth groups such as 4-H, Girl Guides and Boy Scouts on various aspects of wildlife conservation. Staff ran a hunters seminar for senior citizens taking part in the Hecla Island moose hunt. Staff also took an active role in organizing the Prairie Canada Decoy Carving Competition, held in Winnipeg.

Recreational Hunting

Recreational hunting remained popular in 1987-88. Some 55,646 big game hunters harvested 1,280 moose, 23,258 deer, 327 elk, 900 black bears, 79 woodland caribou and 20 timber wolves. In that same year 31,800 resident and 6,800 non-resident game bird hunters took to field and marsh.

Co-operative Wildlife Management Programs

The Beverly-Kaminuriak Caribou Management Board developed a joint caribou management plan in consultation with the public. The plan is now operational and being used to guide co-operative management programs.

The Skownan Moose Management Board functioned reasonably well, striving to increase the moose population in the Waterhen area by reducing hunting pressure. Hunting activity by Treaty Indians in the area has been reduced and the moose population has shown a substantial increase, now numbering about 200 animals. There is concern that some band members are now harvesting animals and that this will jeopardize the growth of the herd. Discussions with band leaders were initiated to alleviate this potential problem.

In November 1986, Manitoba signed a Moose Management Agreement for Game Hunting Area 8 with The Pas Indian Band, the Moose Lake Indian Band, the Chemawawin Indian Band, The Pas Area Wildlife Association, the Cormorant Community Council and the Moose Lake Community Council. This agreement, renewed for the second time, has suspended moose hunting in Game Hunting Area 8 for a three-year period.

A Co-operative Elk Management Board was established in 1986 to review issues relative to elk management in the Duck Mountain area. This board continued to function well and met four times during the year.

A Wildlife Advisory and Planning Board, functioning under Article 15 of the Northern Flood Agreement, operated with increased effectiveness. The board initiated a special moose monitoring project in north central Manitoba and produced a quarterly newsletter in Cree and English. The board also drafted a proposal for a co-operative joint management plan.

Winnipeg Deer Herd Relocation Program

Throughout the 1987-88 winter, Natural Resources staff captured 19 Winnipeg deer and released them in the St. Malo area. Unlike the previous two winters which saw a total of 264 deer relocated, unseasonably mild winter weather kept deer away from baited capture sites. The program continued to draw heavily upon volunteers from the St. Malo Wildlife Association and residents of Winnipeg.

Polar Bear Alert Program

The 1987 Polar Bear Alert Program ran from mid-August to mid-November, ending with the freezing of Hudson Bay. Under the program, Churchill staff sought to minimize the conflict between bears and people, and in doing so conducted "Polar Bear Safety and Awareness Courses." Five courses were attended by 100 people including staff from the Department of Transport, Parks Canada, the Churchill Health Centre, the L.G.D. of Churchill and C.N. Rail. Staff also showed the department's new Polar Bear Alert film to every student in Churchill. There were 86 documented occurrences of polar bears in the alert area. In addition, 30 bears were captured and housed in the polar bear holding facility. Three bears had to be destroyed. In a questionnaire sent to Churchill residents, 95% of the respondents approved of the department's delivery of the 1987 Alert Program.

Urban Waterfowl Management

For the past three years, water levels have been manipulated in the lower reaches of the Red River Floodway to provide suitable habitat for walleye fry and nesting ducks. The co-operative program involving Ducks Unlimited Canada, Manitoba Agriculture, and Manitoba Natural Resources has proven successful.

Commercial Management Programs

Amphibian and Reptile Harvesting

During a two-week snake picking season, 56,864 red-sided garter snakes were captured live and sold to biological supply houses in the United States. A three-month leopard frog season resulted in the sale of 4,085 kilograms of frogs.

Wild Fur Management

Manitoba trappers harvested $6.5 million worth of wild fur in 1987-88, a $1.5 million decrease from last year. This decrease was attributed to a weaker fur market caused by anti-trapping activities and the stock market decline. Furbearer populations were stable to increasing.

Trapper education staff conducted 19 fur schools involving 620 trappers. Public fur management displays and public school presentations contacted some 24,000 Manitobans. Trapline officers conducted courses on humane trapping and fur conservation in several northern communities.

Four training sessions were held at the Wallace Lake Experimental Trapline Facility. Participants included native youths and the Canadian Armed Forces. Eleven natural resource students from the Keewatin Community College in The Pas participated in a fur management course at the Tramping Lake facility.

The Wild Fur Policy was completed and reviewed with the Minister of Natural Resources.

Wood Bison Re-establishment Program

The wood bison herd held in captivity near Waterhen Manitoba continued to grow, reaching 160 animals. Calves born on site were tagged in readiness for release to the wild in June, 1988.

Wildlife Damage Control

The department helped prevent black bear damage to beehives by removing problem bears from the vicinity of beeyards. In 1987-88, bear damage compensation payments totalled $17,000. Forty grants of $100 each were available to beekeepers who installed bear-proof electric fences around bee yards.

Scaring devices and repellents were used to keep elk and deer away from farmer's crops. Winter intercept feeding was again used as an alternate food source to reduce deer and elk damage to crops or stored feed. Compensation payments for deer, elk and black bear damage to farm crops amounted to $158,000.

A wet fall in several areas of the province, and the delay in harvest in those areas, saw waterfowl damage prevention costs amount to $379,000. Program costs were shared equally between Manitoba and Canada.

The Canada-Manitoba Riding Mountain National Park Beaver Damage Control Program was undertaken again this year in accordance with the 5-Year Agreement. Under this agreement the department and Parks Canada removed problem beavers from lands adjacent to the park.

Habitat Management Programs

Wildlife Management Area Program

During 1987, a total of 2,513 hectares of Crown land was proposed for WMA designation, involving ten new and six existing areas. The proposal was approved by the Provincial Land Use Committee of Cabinet, but was not formally designated by Order-in-Council.

Approximately $190,000 in grants in lieu of taxes were paid by the province on 45 southern WMA's in 49 rural municipalities and local government districts.

Development activities carried out during 1987 included: the clearing of boundaries on two WMA's, placing feature signs on five WMA's, posting boundaries on ten WMA's, mowing boundaries on two WMA's, treeplanting and shelterbelt maintenance on wildlife oasis sites and eight WMA's, improving access on six WMA's, establishing forage and nest cover on five WMA's and improving interpretive facilities in four WMA's.

Deer Habitat Program

Approximately 192 hectares of land were acquired and included in the Whitemud Watershed WMA to secure critical wintering habitat for white-tailed deer.

Deer habitat enhancement activities included the development of eight hectares of forage in the Watson P. Davidson WMA, maintenance of existing forage plots in several eastern provincial forests and Duck Mountain Provincial Park, and seeding of forage plots cleared in the Little Birch WMA and portions of fireguards cleared in the Narcisse WMA.

Manitoba Habitat Heritage Program

The Manitoba Habitat Heritage Program is the responsibility of the Manitoba Habitat Heritage Corporation which in turn is administered by a ten-member Board of Directors. Governed by The Manitoba Habitat Heritage Act, the Corporation may singly or in cooperation with other agencies purchase or lease fish and wildlife habitat and undertake projects designed to restore or enhance fish and wildlife habitats. Wildlife Branch staff provided professional and technical support to the Habitat Heritage Corporation.

Habitat Heritage projects in 1987-88 included the protection of 1,200 hectares of private land with the signing of five-year Habitat Protection Agreements with 20 landowners. An additional 256 hectares of habitat received permanent protection under acquisition projects. Habitat enhancement projects included the establishment of forage plots on Habitat Heritage lands and the Duck Mountain area, and the placement of nesting structures for rare birds. In addition, prescribed burns were undertaken in The Pas and Duck Mountain areas to enhance moose and elk habitat.

Wildlife Habitat Canada Projects in Manitoba

Duck Mountain Elk Habitat
Branch staff completed the burn plan for the area of Duck Mountain Provincial Park and Forest to be enhanced in 1988. The re-establishment of grasslands within the Duck Mountains will enhance winter habitat and should reduce depredation on crops adjacent to Duck Mountain.

Habitat Enhancement Land Use Program (HELP)
Initiated in 1987 as a holistic approach to land use management in western Manitoba's prairie pothole district, HELP sought to assist farmers practice sound soil and wildlife conservation measures. Some of the options available to farmers under the program included leasing native upland/wetland complexes, planting cover crops for wildlife habitat and soil erosion/salinity control, restoring wetlands, grazing on a rotational basis, and practicing intensive habitat

management techniques. Funding was provided by Wildlife Habitat Canada ($1.5 million), Ducks Unlimited Canada ($750,000) and Manitoba Natural Resources ($75,000). During the year, three term staff were hired to deliver the program, and an office was set up in Shoal Lake. A program brochure was published and distributed to Shoal lake landowners. A preliminary analysis of potential projects and their value to wildlife was completed, representing over 4,000 hectares of prairie pothole complex.

Land Use Allocation

Branch staff made wildlife related land use recommendations to nine planning districts and the Crown Land Classification Committee. Over 300 land use requests were reviewed and actioned.

Branch staff also made wildlife related recommendations on the implementation of the new Environment Act. Staff also liaised with Manitoba Highways and Transportation relative to highway developments in the Westlake and Lynn Lake areas and their associated impacts on wildlife habitat.

Wetland Management Program

In June, 1987 the Oak Hammock Marsh Wildlife Management Area was declared a Wetland of International Importance under the Ramsar Convention. Two years earlier Delta Marsh had become the first Manitoba wetland to receive such recognition and designation.

Seven Ducks Unlimited Canada projects involving 589 hectares of Crown land were reviewed and approved by the Wildlife Branch. The Reader-Root project within the Saskeram Wildlife Management Area was initiated in 1988, while the Saskeram and Summerberry Advisory Committees continued their co-operative management roles in the Saskatchewan River Delta.

Task forces continued to develop multidisciplinary resource plans for Lake Francis, Rat River and the Oak Lake/Plum Lakes. Surveys were completed for contour mapping the Plum Lakes area and mapping was underway.

A co-operative study with the Delta Waterfowl and Wetlands Research Station, and the Delta Agricultural Conservation Co-operative showed that regulated flooding of whitetop grass can benefit nesting waterfowl and produce high hay yields.

The Manitoba Heritage Marsh Committee continued to consider wetlands for potential designation as Heritage Marshes.

Habitat Inventory

An inventory of loss of deer habitat in southern Manitoba was completed in 1987-88. Sixteen study sites of four townships, each 374 square kilometres will be inventoried every five years using LANDSAT satellite data to monitor changes and identify long-term trends.

Moose habitat maps were produced for a 7,000 square kilometre area peripheral to the community of Pukatawagan. The maps were produced utilizing computer analysis equipment at the Manitoba Remote Sensing Centre and LANDSAT data. The information generated from this study will be used over the next two winters to design and conduct a moose and caribou survey in the Pukatawagan area. This will be the initial phase of a co-operative ungulate community management plan.

Implementation Strategy North American Waterfowl Management Plan

Provincial and federal wildlife and agriculture agencies, and several nongovernment wildlife agencies, cooperatively developed a strategy for the implementation of the North American Waterfowl Management Plan (NAWMP). This plan, if implemented, would protect and improve waterfowl breeding habitat within southern Manitoba.

A "First Step" project under the NAWMP has been submitted to the Prairie Habitat Joint Venture Committee. This project is largely an expansion of the area encompassed by the Habitat Enhancement Land Use Program (HELP).

Biological Services

Canada Goose Studies

The long-term study of the Eastern Prairie Population (EPP) of Canada geese at the Cape Churchill camp continued in 1987. A late snow storm delayed nesting by up to three weeks on the northern half of the breeding grounds, resulting in an overall decrease in production. The fall flight of geese was down by about 50% in 1987. Bands were placed on 2,600 birds on the breeding grounds. Neck collars were placed on 1,000 of the banded birds. The maintenance of a large number of banded birds in this population is the basis for estimates of survival and migration patterns.

A co-operative study of lead levels in the blood of EPP Canada geese was undertaken with a graduate student from the University of Wisconsin. One thousand blood samples were taken at Churchill; 700 blood samples and 300 gizzards were collected at Oak Hammock

Marsh during fall migration period. Preliminary results indicated a lead poisoning concern at Oak Hammock Marsh.

Two hundred giant Canada geese were banded at the Riverton marshes and The Narrows in Lake Manitoba. Over 2,000 ducks were banded at Dauphin Lake.

Harvest estimates for the Oak Hammock Managed Hunting Area were calculated as part of the intensive hunter management program. The estimated harvest of Canada geese at Oak Hammock was 9,000, a reduction of 33% from 1986.

Sharp-tailed Grouse Habitat Enhancement
Action was taken to enhance the recovery of the sharp-tailed grouse populations in the central Interlake area. Several areas in the Narcisse Wildlife Management Area were cleared in early 1987 to create new dancing grounds and remove excessive shrubby vegetation from old dancing grounds.

Grounds were also mowed in spring to reduce woody vegetation. Monitoring of the areas indicated some initial response by the grouse to these areas.

Information Management
Biostatistical staff in the Population Ecology Unit took the lead role in implementing an integrated information management system for the branch. A local area network (LAN) has been installed which has begun the integration of data processing, financial management, word processing, and communications. New users will be brought on the system as needs, funds and skills permit. Dramatic improvements have already been demonstrated on the speed, reliability, and quality of word processing operations.

Fur Harvest Statistics
The automated system now generates detailed and summary information on 15,000 trapping license holders as well as furbearer harvests and trappers income by area.

Improved Trapping Systems
Co-operative work with trap inventors and the Fur Institute of Canada continued during 1987-88, primarily in the area of power-snare development and the capture of live test animals. Questionnaire results provided current trap ownership and usage to assist in refining trapping technology regulations and trapper education programs.

Non-game Endangered Wildlife

American White Pelican
The American white pelican is no longer threatened in Canada. Over 25% of the world's population breeds in Manitoba. Population recoveries likely relate to the DDT ban and a better educated public. The species continues to be vulnerable to disturbances on the breeding grounds. Current Manitoba studies centre on interspecific relationships at colony locations.

Piping Plover
The status of the piping plover in Manitoba continues to be precarious, as it is throughout North America. It no longer breeds in The Great Lakes Region and has been greatly reduced throughout the remainder of its range. Manitoba has two main breeding populations (East Shoal Lake and Long Point) where the majority of its 100 breeding adults nest. Current provincial efforts centre on securing major nesting sites.

Bald Eagle
Nest surveys covering the bald eagle's range in Manitoba were carried out in 1987. Results indicate that the 1300 pairs of adult eagles nest in the province.

Great Gray Owl
High numbers of small rodents in wooded bogs in the southeast led to increased nesting activity by great gray owls. Twenty-six nests were closely monitored. Approximately 35 adult males, females and young were radio-marked and followed through summer, fall and winter. Southeastern Manitoba habitat plays a vital role in maintaining populations of the provincial bird.

Burrowing Owl
An alarming population decline continues unabated. From 100 known pairs in 1982, the provincial population has fallen to only 18 pairs, of which only 12 pairs nested successfully. A family group with seven young and nine orphaned chicks were transplanted from Saskatchewan to a pasture at Oak Hammock Marsh WMA.

Peregrine Falcons
With the cooperation and financial support of employees of the United Grain Growers Company, four young Peregrine Falcons were reared and released in downtown Winnipeg (U.G.G. building). An adult male Peregrine found dead at Portage and Main in April proved to be a bird from the first Winnipeg release in 1981. Another unidentified adult frequented the roof of the Delta Winnipeg Hotel for nearly two months.

Woodland Caribou and Forestry Study
The Wildlife Branch continued a five-year co-operative study with Parks and Forestry branches, Abitibi-Price Inc., and the University of Manitoba to devise timber harvesting guidelines that will minimize the impact of forestry operations on the caribou herd east of Lake Winnipeg. Approximately 25 radio-collared caribou were tracked during the winter to record movement patterns and determine habitat types used by caribou. Data from this study will be integrated with existing computer-based forest data to allow long-range planning that accounts for the needs of caribou.

Hunter Questionnaires
A study was completed of the bias that can exist in the present system of estimating big game harvests. Results showed that current single-mailing questionnaire projects appear to overestimate the real harvest by 23%. Future questionnaires beginning with the 1987 moose season, will use multiple mailings to increase the accuracy of harvest estimates.

Riding Mountain Black Bears
A three-year co-operative study of the movements of black bears in the Riding Mountain area was begun by Environment Canada (Parks), Manitoba Natural Resources and the World Wildlife Fund Canada.

The target for 1987 was to place radio collars on 30 bears and to monitor their movement through the summer and fall up to hibernation. The target was achieved. All bears denned inside the park, except for one denning 200 meters outside. Monitoring of collared bears will continue, and data will be incorporated into a computer model which will assist in managing the bears to meet the objectives of both jurisdictions.

Biological Analysis of Wildlife Specimens
Specimens for bioanalysis consisted of two main types: scheduled collections and incidentals collected by staff or donated by the public. During 1987-88, the jaws of 1500 moose, woodland caribou, black bear and elk were collected and aged. Of the 915 furbearer carcasses processed, 176 were lynx and the majority of the remainder were weasels. Wildlife specimens were also distributed to museums, universities and other agencies for collection or disease analysis purposes. The major health problem of furbearers was a high incidence of sarcoptic mange in foxes (western and southwestern Manitoba) and wolves (The Pas area).

Hunting Licences Sold, 1987/88

Type of Licence	Fee	Number Sold	Revenue
Game Bird			
Resident of Manitoba	$ 7.00	32,602	$ 212,759.50
Non-Resident (Canadian)	45.00	964	42,959.00
Non-Resident (Non-Canadian)	85.00	5,383	455,133.00
Wild Turkey			
Resident of Manitoba	10.00	432	4,320.00
Moose			
Resident of Manitoba	30.00	7,965	236,450.00
Non-Resident (Canadian)	250.00	6	1,500.00
Non-Resident (Non-Canadian)	300.00	84	25,000.00
Elk			
Resident of Manitoba	30.00	1,842	55,260.00
Woodland Caribou			
Resident of Manitoba	30.00	265	7,948.00
Black Bear			
Resident of Manitoba	12.00	3,107	36,070.00
Non-Resident (Canadian)	50.00	24	1,200.00
Non-Resident (Non-Canadian)	100.00	735	73,272.00
Deer			
Resident of Manitoba	17.00	43,764	723,590.00
Non-Resident (Canadian)	80.00	331	26,480.00
Non-Resident (Non-Canadian)	100.00	137	13,694.50
Timber Wolf			
Non-Resident (Canadian)	25.00	0	0.00
Non-Resident (Non-Canadian)	50.00	4	200.00
Total Licence Sales			
Resident of Manitoba		89,977	1,276,397.50
Non-Resident (Canadian)		1,325	72,139.00
Non-Resident (Non-Canadian)		6,343	567,499.50
Total		97,645	$1,916,036.00
Replacement	variable	319	955.00
Wildlife Certificates	8.00	66,782	503,692.50
		164,746	$2,420,683.50

Hunting Licence Sales and Revenue, 1978/79 to 1987/88

	Game Bird		Big Game		Wildlife Certificates		Total Licences & Certificates	
Year	Licences Sold	Revenue	Licences Sold	Revenue	Licences Sold	Revenue	Licences Sold	Revenue
1978/79	60,061	402,525.75	55,822	596,778.75	82,267	165,835.25	198,150	1,165,139.75
1979/80	59,783	440,639.25	48,250	539,079.50	77,855	157,039.00	185,888	1,136,757.75
1980/81	58,091	460,939.75	60,505	666,291.25	83,022	167,673.00	201,618	1,294,904.00
1981/82	56,203	474,355.50	66,570	713,353.25	83,998	169,719.00	206,771	1,357,427.75
1982/83	51,618	621,183.00	66,711	1,081,211.50	81,225	207,131.50	199,554	1,909,526.00
1983/84	44,731	697,294.50	64,062	1,134,739.50	75,119	266,116.50	183,912	2,098,150.50
1984/85	38,826	565,929.00	59,406	1,158,430.00	68,233	309,957.00	166,465	2,034,316.00
1985/86	35,342	588,487.00	52,541	1,066,958.00	62,607	409,699.00	150,490	2,065,144.00
1986/87	39,141	691,140.50	53,537	1,101,829.00	64,615	422,833.00	157,293	2,215,802.50
1987/88	39,381	715,171.50	58,583	1,201,819.50	66,782	503,692.50	164,746	2,420,683.50

Wildlife-Based Revenues 1987/88

Type of Licence	Revenue	
Hunting Licences		
Wildlife Certificates	$503,692.50	
Game Bird Licences	710,851.50	
Wild Turkey Licences	4,320.00	
Black Bear Licences	110,542.00	
Replacement Licences	955.00	
Caribou Licences	7,948.00	
Deer Licences	763,764.50	
Elk Licences	55,260.00	
Moose Licences	263,150.00	
Timber Wolf Licences	200.00	
Total		$2,420,683.50
Commercial Licences		
Trapper Licences	$83,259.50	
Fur Dealer Licences	4,425.00	
Tanner Licences	100.00	
Taxidermist Licences	1,675.00	
Shooting Preserve Licences	500.00	
Dog Trainer Licences	994.00	
Game Bird Farm Licences	2,310.00	
Amphibian/Reptile Licences	1,823.00	
Guide Licences	17,540.00	
Total		$112,626.50
Fur Royalties		$176,643.00
Miscellaneous Revenue		$1,488.36
Total		$2,711,441.36

NOTE: *Revenues are based on receipts applicable to licence and fur years rather than to the fiscal year.*

Quantity Produced, Average Pelt Price, Value of Production and Provincial Royalty Paid, By Species, For the Year Ending August 31, 1988

Species	Quantity	Average Price	Value	% of Total Value (approx.)	Royalty Per Pelt	Royalty
Badger	385	27.50	$ 10,588	0.2	$ 1.00	$ 385
Bear	816	54.50	44,472	0.8	2.00	1,632
Beaver	45,663	27.00	1,232,901	23.9	1.00	45,663
Coyote	8,767	36.00	315,612	5.9	2.00	17,534
Ermine	11,256	3.50	39,396	0.7	.10	1,126
Fisher	3,110	135.00	419,850	7.8	3.00	9,330
Fox, Blue	11	23.00	253	0.0	2.00	22
Fox, Cross	296	57.00	16,872	0.3	2.00	592
Fox, Red	8,813	23.00	202,699	3.8	2.00	17,626
Fox, Silver	58	23.00	1,334	0.0	2.00	116
Fox, White	296	14.00	4,144	0.1	1.00	296
Lynx/Bobcat	383	360.00	137,880	2.6	10.00	3,830
Marten	12,105	90.00	1,089,450	20.2	2.00	24,210
Mink	19,121	34.00	650,114	12.0	1.00	19,121
Muskrat	246,033	4.10	1,008,735	18.7	.10	24,603
Otter	2,320	36.00	83,520	1.6	1.50	3,480
Raccoon	4,929	18.25	89,954	1.7	1.00	4,929
Squirrel	27,072	.75	20,304	0.4	.05	1,354
Wolf, Timber	252	69.00	17,388	0.3	2.00	504
Wolverine	58	142.50	8,265	0.2	5.00	290
Total			$5,393,731			$176,643

Number of Open Area and Registered Trappers and the Estimated Value of Manitoba Wild Fur Production for the 12 Month Period Ending August 31st[1]

Year	Licences Sold	Registered Trapline Permits Sold	Production Value
1978/79	10,040	3,238	7,882,404
1979/80	12,809	3,627	9,615,604
1980/81	13,327	3,425	8,240,619
1981/82	13,072	3,187	5,564,491
1982/83	13,938	3,110	4,313,572
1983/84	12,110	2,927	3,783,562
1984/85	12,917	2,974	4,764,525
1985/86	11,926	2,917	5,061,209
1986/87	12,302	2,745	8,070,118
1987/88	11,730	2,993	5,393,731

[1] *In 1981/82, the departmental fur year was changed to the 12 month period ending August 31st. The information for all previous years is based on the 12 month period ending September 30th.*

Appendix I

Manitoba Natural Resources

Summary - Revenue 1987-88

Branch	Actual Revenue ($'000)
Fisheries (& Commissions)	$ 1,877.0(1)
Forestry	3,282.3
Lands	970.2
Parks	5,440.0
Water Resources	31,991.7
Wildlife (& Commissions)	2,793.4(1)
Sundry	744.9
Municipalities Shared Costs Receipts	83.3
Sale of Government Assets	23.3
Government of Canada (Shared-cost receipts)	2,648.3
Total:	$49,854.4

(1) Includes Commissions Paid to Vendors
Fisheries $95.5
Wildlife $78.4

Summary of Expenditures 1987-88

Appropriation	Service	1987-88			Explanation Number
	Current and Capital	Actual ($'000)	Estimate ($'000)	Variance ($'000) Over/(Under) Estimate	
12-1	Administration and Finance	4,569.3	4,163.4	405.9	
12-2	Regional Services	27,737.8	20,341.7	7,396.1	
12-3	Engineering and Construction	6,825.5	6,854.7	(29.2)	
12-4	Water Resources	8,710.7	8,822.8	(112.1)	
12-5	Parks	13,705.3	13,854.3	(149.0)	
12-6	Lands	1,951.8	1,966.9	(15.1)	
12-7	Forestry	7,359.5	7,428.1	(68.6)	
12-8	Fisheries	4,919.1	3,837.1	1,082.0	
12-9	Wildlife	4,744.2	4,530.9	213.3	
12-10	Surveys and Mapping	3,114.3	3,174.3	(60.0)	
12-11	Resource Support Programs	762.6	780.6	(18.0)	
12-12	Expenditures Related to Capital	8,321.9	10,566.0	(2,244.1)	
	Total:	92,772.0	86,320.8	6,401.2	
	Jobs Fund Initiatives				
	Current	5,883.9	5,750.0	133.9	
	Capital	810.5	1,000.0	(189.5)	
	Sub-total:	6,694.4	6,750.0	(55.6)	
	Recovered from Jobs Fund	(6,694.4)	(6,750.0)	55.6	
	Total:	0.0	0.0	0.0	

Appendix II

Summary of Expenditures by Appropriation 1987-88

Appropriation	Service Current and Capital	1987-88 Actual ($'000)	1987-88 Estimate ($'000)	1987-88 Variance ($'000) Over/(Under) Estimate	Explanation Number
12-1	**Administration and Finance**				
	(a) Minister's Salary	20.5	20.6	(0.1)	
	(b) Executive Support				
	Salaries	198.2	212.1	(13.9)	
	Other Expenditures	98.1	86.3	11.8	
	(c) Resource Allocation and Economics				
	Salaries	490.5	512.3	(21.8)	
	Other Expenditures	50.6	47.2	3.4	
	(d) Communications				
	Salaries	336.3	330.1	6.5	
	Other Expenditures	135.0	132.7	2.3	
	(e) Financial Services				
	Salaries	743.0	753.2	(10.2)	
	Other Expenditures	171.3	185.1	(13.8)	
	(f) Human Resource Management				
	Salaries	593.4	572.7	20.7	
	Other Expenditures	109.0	102.5	6.5	
	(g) Computer Services				
	Salaries	282.0	283.5	(1.5)	
	Other Expenditures	42.2	42.3	(0.1)	
	(h) Administrative Services				
	Salaries	646.5	614.2	32.3	
	Other Expenditures	130.5	116.6	13.9	
	(j) Internal Audit				
	Salaries	153.7	144.9	8.8	
	Other Expenditures	6.5	7.1	(0.6)	
	(m) Communities Economic Development Fund	361.7	0.0	361.7	1
	TOTAL 12-1	4,569.3	4,163.4	405.9	

Explanation Number	Appropriation Number/Name	Explanations
1.	12-1M Communities Economic Development Fund	T.B. #2A/88-1(d) authorized the payment of $600.00 operating grant for CEDF. However, CEDF reported a loss of only $466.6 less a bad debt expense of $104.9 leaving the Provincial funding level at $361.7. The authorization for the grant to cover the loss is a result of a new accounting policy adopted by the Province for its fiscal year ending March 31, 1987 with respect to the treatment of the value of its assets related to Crown Corporations, Agencies, Boards and Commissions.

Appropriation	Service Current and Capital	1987-88 Actual ($'000)	1987-88 Estimate ($'000)	1987-88 Variance ($'000) Over/(Under) Estimate	Explanation Number
12-2	**Regional Services**				
	(a) Administrative Services				
	Salaries	749.3	807.0	(57.7)	
	Other Expenditures	714.6	687.5	27.1	
	Problem Wildlife Control	136.4	138.7	(2.3)	
	(b) Northwest Region				
	Salaries	945.1	963.4	(18.3)	
	Other Expenditures	372.0	360.0	12.0	
	(c) Northeast Region				
	Salaries	1,138.8	1,145.0	(6.2)	
	Other Expenditures	734.8	661.3	73.5	
	(d) Interlake Region				
	Salaries	1,322.1	1,302.7	19.4	
	Other Expenditures	488.3	459.6	28.7	
	(e) Southwest Region				
	Salaries	759.6	754.3	5.3	
	Other Expenditures	272.3	272.1	0.2	
	(f) Western Region				
	Salaries	1,173.5	1,129.5	44.0	
	Other Expenditures	418.5	417.8	0.7	
	(g) Southeast Region				
	Salaries	999.7	1,004.7	(5.0)	
	Other Expenditures	349.0	364.5	(15.5)	
	(h) Eastern Region				
	Salaries	851.6	863.7	(12.1)	
	Other Expenditures	272.6	276.1	(3.5)	
	(j) Whiteshell Region				
	Salaries	661.7	643.3	18.4	
	Other Expenditures	229.9	203.1	26.8	
	(k) N.D.A. - Provincial - Fire Program Development and Evaluation				
	Salaries	313.7	288.0	25.7	
	Other Expenditures	238.2	362.2	(124.0)	1
	(m) N.D.A. - Provincial - Fire Detection Program				
	Salaries	31.7	36.5	(4.8)	
	Other Expenditures	211.8	288.1	(76.3)	2

Appropriation	Service Current and Capital	1987-88 Actual ($'000)	1987-88 Estimate ($'000)	1987-88 Variance ($'000) Over/(Under) Estimate	Explanation Number
12-2	**Regional Services (cont'd)**				
	(n) N.D.A. – Provincial – Fire Prevention Program				
	Salaries	42.4	46.6	(4.2)	
	Other Expenditures	70.8	86.9	(16.1)	3
	(p) N.D.A. – Provincial – Fire Pre-Suppression Program				
	Salaries	1,231.6	1,147.8	83.8	
	Other Expenditures	2,227.7	2,209.4	18.3	
	(r) N.D.A. – Provincial – Fire Extra-Suppression Fund	8,621.6	1,290.0	7,331.6	4
	(s) N.D.A. – Provincial – Fire Tac Program	935.6	1,007.3	(71.7)	
	(t) N.D.A.– Provincial – Helitac Program	1,222.9	1,124.6	98.3	
	TOTAL 12-2	27,737.8	20,341.7	7,396.1	

Explanation Number	Appropriation Number/Name	Explanations
1.	12-2K-2 N.D.A. – Provincial – Fire Program Development and Evaluation	A provision was made in the 1987-88 Estimates for radio licensing fees which were expected to be introduced during the year. The Federal Government however, did not proceed at this time. Initial start-up costs associated with the dial-up radio network were lower than anticipated.
2.	12-2M-2 N.D.A. – Provincial – Fire Detection Program	Fewer flights were being flown exclusively for fire detection purposes. Flights being used for more than one activity were charged to the sub-appropriation for which the flight was originated.
3.	12-2N-2 N.D.A. – Provincial– Fire Prevention Program	Fire prevention promotional material was not received in time for payment to be made out of 1987-88 funds.
4.	12-2R N.D.A. – Provincial – Fire Extra-Suppression Fund	T.B. #24/87-12(a) gave authority to expend up to an additional $7,720.0 in this account due to the Wallace Lake fire experienced in May 1987.

Appropriation	Service Current and Capital	1987-88			Explanation Number
		Actual ($'000)	Estimate ($'000)	Variance ($'000)	
				Over/(Under) Estimate	
12-3	**Engineering and Construction**				
	(a) Administration				
	Salaries	460.1	514.3	(54.2)	
	Other Expenditures	106.1	354.1	(248.0)	
	Recoveries	0.0	(250.0)	250.0	1
	(b) Technical Services				
	Salaries	1,413.7	1,432.1	(18.4)	
	Other Expenditures	94.0	94.4	(0.4)	
	Recoveries	(68.7)	(55.0)	(13.7)	2
	(c) Regional Engineering Services				
	Salaries	4,059.9	3,994.9	65.0	
	Other Expenditures	794.2	804.4	(10.2)	
	Recoveries	(33.8)	(34.5)	0.7	
	TOTAL 12-3	6,825.5	6,854.7	(29.2)	

Explanation Number	Appropriation Number/Name	Explanations
1.	12-3A-2/3 Administration	Project Management funds and the corresponding recoveries were not required in 1987-88.
2.	12-3B-3 Technical Services	Recoveries from services performed for the Department of Highways exceeded original estimates.

Appropriation	Service Current and Capital	1987-88 Actual ($'000)	Estimate ($'000)	Variance ($'000)	Explanation Number
				Over/(Under) Estimate	
12-4	**Water Resources**				
	(a) Administration				
	Salaries	374.4	381.4	(7.0)	
	Other Expenditures	109.6	108.0	1.6	
	(b) Water Licensing and Approvals				
	Salaries	421.8	420.9	0.9	
	Other Expenditures	20.8	24.3	(3.5)	
	(c) Water Management				
	Salaries	1,339.9	1,372.4	(32.5)	
	Other Expenditures	211.2	283.4	(72.0)	1
	Waterway Maintenance	3,802.7	3,781.8	20.9	
	(d) Hydrotechnical Services				
	Salaries	1,077.4	1,062.9	14.5	
	Other Expenditures	768.9	777.4	(8.5)	
	(e) Regional Management				
	Salaries	318.9	321.2	(2.3)	
	Other Expenditures	35.7	36.8	(1.1)	
	(f) Canada/Manitoba Flood Damage Reduction Agreement				
	Salaries	150.9	163.9	(13.0)	
	Other Expenditures	78.5	88.6	(10.1)	
	TOTAL 12-4	8,710.7	8,822.8	(112.1)	

Explanation Number	Appropriation Number/Name	Explanations
1.	12-4C-2 Water Management	In-court legal and consultant fees associated with the Province's defence in the Whitemud court case which was expected to, but did not, proceed to court during 1987-88.

Appropriation	Service Current and Capital	1986-87 Actual ($'000)	1986-87 Estimate ($'000)	1986-87 Variance ($'000) Over/(Under) Estimate	Explanation Number
12-5	**Parks**				
	(a) Administration				
	Salaries	333.5	409.4	(75.9)	1
	Other Expenditures	171.1	195.2	(24.1)	
	(b) Park Planning				
	Salaries	676.8	716.0	(39.2)	
	Other Expenditures	143.9	158.5	(14.6)	
	(c) Program Management				
	Salaries	369.8	378.8	(9.0)	
	Other Expenditures	46.1	56.7	(10.6)	2
	(d) Park Maintenance				
	Salaries	8,571.7	8,546.6	25.1	
	Other Expenditures	2,809.3	2,820.6	(11.3)	
	(e) Visitor Services				
	Salaries	394.8	400.4	(5.6)	
	Other Expenditures	99.6	98.4	1.2	
	(f) Grant Assistance	88.7	73.7	15.0	3
	TOTAL 12-5	13,705.3	13,854.3	(149.0)	

Explanation Number	Appropriation Number/Name	Explanations
1.	12-5A-1 Administration	Staff vacancies resulted in surplus funding.
2.	12-5C-2 Program Management	Regional Park Specialists in both Eastern and Southeastern Regions were transferred resulting in a decrease in support costs.
3.	12-5F Grant Assistance	T.B. 19/87-12(a) authorized a new grant of $5.0 to "Friends of Whiteshell" as well as an increase of the grant from $5.0 to $15.0 for the "Friends of Spruce Woods" after the 1987-88 Estimates were approved.

Appropriation	Service Current and Capital	1986-87 Actual ($'000)	1986-87 Estimate ($'000)	1986-87 Variance ($'000) Over/(Under) Estimate	Explanation Number
12-6	**Lands**				
	(a) Administration				
	Salaries	83.8	102.3	(18.5)	
	Other Expenditures	14.6	17.9	(3.3)	
	(b) Crown Lands Administration				
	Salaries	708.7	707.2	1.5	
	Other Expenditures	84.6	97.8	(13.2)	
	(c) Regional Management				
	Salaries	297.3	294.6	2.7	
	Other Expenditures	102.6	87.8	14.8	
	(d) Crown Lands Registry				
	Salaries	294.7	279.4	15.3	
	Other Expenditures	190.6	200.6	(10.0)	
	(e) N.D.A. — Provincial — Wild Rice				
	Salaries	115.2	112.7	2.5	
	Other Expenditures	59.7	66.6	(6.9)	
	TOTAL 12-6	1,951.8	1,966.9	(15.1)	

Appropriation	Service Current and Capital	1987-88 Actual ($'000)	1987-88 Estimate ($'000)	1987-88 Variance ($'000) Over/(Under) Estimate	Explanation Number
12-7	**Forestry**				
	(a) Administration				
	Salaries	279.3	255.3	24.0	
	Other Expenditures	30.1	30.5	(0.4)	
	Grant Assistance	34.4	34.4	0.0	
	(b) Forest Inventory				
	Salaries	574.9	590.5	(15.6)	
	Other Expenditures	144.9	146.8	(1.9)	
	(c) Timber Management and Development				
	Salaries	193.0	194.8	(1.8)	
	Other Expenditures	32.2	35.4	(3.2)	
	(d) Silviculture				
	Salaries	266.0	254.9	11.1	
	Other Expenditures	880.9	881.7	(0.8)	
	(e) Forest Protection				
	Salaries	653.3	684.8	(31.5)	
	Other Expenditures	1,279.1	1,328.7	(49.6)	
	(f) Regional Management				
	Salaries	727.2	734.3	(7.1)	
	Other Expenditures	202.3	225.0	(22.7)	
	(g) N.D.A. — Provincial — Forest Renewal				
	Salaries	506.3	482.4	23.9	
	Other Expenditures	1,555.6	1,548.6	7.0	
	TOTAL 12-7	7,359.5	7,428.1	(68.6)	
	(h) Jobs Fund Initiatives — Sectoral Projects				
	Salaries	287.1	316.2	(29.1)	
	Other Expenditures	3,289.2	3,293.8	(4.6)	
	Jobs Fund — Recoverable	(3,576.3)	(3,610.0)	33.7	
	(j) Jobs Fund Initiatives — Canada/ Manitoba Forest Renewal Agreement				
	Salaries	30.5	28.4	2.1	
	Other Expenditures	2,277.1	2,111.6	165.5	
	Jobs Fund — Recoverable	(2,307.6)	(2,140.0)	(167.6)	
	TOTAL	0.0	0.0	0.0	

Appropriation	Service Current and Capital	1987-88 Actual ($'000)	1987-88 Estimate ($'000)	1987-88 Variance ($'000) Over/(Under) Estimate	Explanation Number
12-8	**Fisheries**				
	(a) Administration				
	Salaries	239.2	260.4	(21.2)	
	Other Expenditures	42.3	48.1	(5.8)	
	(b) Regional Management				
	Salaries	746.9	736.5	10.4	
	Other Expenditures	234.4	250.1	(15.7)	
	(c) Fish Culture				
	Salaries	594.2	602.9	(8.7)	
	Other Expenditures	167.0	161.2	5.8	
	(d) Fisheries Enhancement				
	Salaries	603.8	549.8	54.9	
	Other Expenditures	220.6	91.3	129.3	1
	(e) Commercial Fishing Management				
	Salaries	183.0	181.7	1.3	
	Other Expenditures	32.7	26.7	6.0	
	(f) Sport Fishing Management				
	Salaries	123.3	122.8	0.5	
	Other Expenditures	41.7	36.0	5.7	
	(g) Northern Fishermen's Freight Assistance	351.6	342.6	9.0	
	(h) Fishermen's Loan Program — Administration	338.4	427.0	(88.6)	2
	(j) Fishermen's Loan Program Grant Assistance	1,000.0	0.0	1,000.0	3
	TOTAL 12-8	4,919.1	3,837.1	1,082.0	

Explanation Number	Appropriation Number/Name	Explanations
1.	12-8D-2 Fisheries Enhancement	T.B. #9/87-12(b) authorized the Department to request Special Warrant funding to cover costs for impact studies related to construction of the Limestone Hydro Generating Station. These funds were recovered in total from Manitoba Hydro into General Revenue.
2.	12-8H Fisherman's Loan Program — Administration	In 1987/88, actual bad debts were paid from a special Department of Finance fund resulting in a one-time surplus to the Department.
3.	12-8J Fisherman's Loan Program — Grant Assistance	T.B. #31/87-12(a) authorized Natural Resources to make a conditional grant to M.A.C.C. in the amount of $1.0 million in support of the Fisherman's Loan Program. This grant is fully recoverable in 1988-89.

Appropriation	Service Current and Capital	1987-88 Actual ($'000)	1987-88 Estimate ($'000)	1987-88 Variance ($'000) Over/(Under) Estimate	Explanation Number
12-9	**Wildlife**				
	(a) Administration				
	Salaries	193.9	198.8	(4.9)	
	Other Expenditures	26.5	21.0	5.5	1
	(b) Operational Management				
	Salaries	285.7	286.4	(0.7)	
	Other Expenditures	136.5	128.6	7.9	
	Grant Assistance	1.0	1.0	0.0	
	(c) Habitat Management				
	Salaries	388.6	466.1	(77.5)	2
	Other Expenditures	294.0	426.4	(132.4)	2
	(d) Biological Services				
	Salaries	441.2	425.8	15.4	
	Other Expenditures	192.0	166.4	25.6	
	Grant Assistance	12.0	12.0	0.0	
	(e) Regional Management				
	Salaries	552.4	547.9	4.5	
	Other Expenditures	180.8	177.8	3.0	
	(f) N.D.A. — Provincial — Wildlife Management				
	Salaries	89.8	112.9	(23.1)	3
	Other Expenditures	141.2	122.8	18.4	
	(g) Fur Management				
	Salaries	461.3	494.8	(33.5)	
	Other Expenditures	312.5	149.1	163.4	4
	Grant Assistance	60.9	30.9	30.0	5
	(h) Canada/Manitoba Waterfowl Damage Prevention Agreement	341.3	325.0	16.3	
	(j) Commercial Wildlife Management				
	Salaries	201.5	200.4	1.1	
	Other Expenditures	206.0	32.5	173.5	6
	Grant Assistance	1.9	4.0	(2.1)	7
	Big Game Damage Compensation	223.2	200.3	22.9	
	TOTAL 12-9	4,744.2	4,530.9	213.3	

Explanation Number	Appropriation Number/Name	Explanations
1.	12-9A-2 Administration	A number of non-discretionary travel commitments for the Director of Wildlife caused the over-expenditure in this area.
2.	12-9C-2 Habitat Management	Provisions made for H.E.L.P. (Habitat Enhancement Land Use Program) project and support costs were not utilized as the filling of positions associated with this program did not occur until late in the fiscal year.
3.	12-9F-1 N.D.A. – Provincial – Wildlife Management	T.B. #50/86-12(a) authorized the Department to include one term staff year in the 1987-88 Estimates and directed the Department to find an additional 1.00 staff year from within existing resources to enable Natural Resources to meet the provincial obligations under the Northern Flood Agreement. The additional staff year could not be allocated from within existing resources and therefore salary funding was not utilized.
4.	12-9G-2 Fur Management	T.B. #41A/87-12(a) authorized the Department to enter into a one year Co-Operative Wildlife Agreement with Indian Affairs Canada for the purpose of expanding the involvement of Indian people in wildlife management. The costs associated with the Agreement were not anticipated and Treasury Board further authorized Natural Resources to include an amount of up to $210.0 in its 1987-88 supplementary supply request for this purpose.
5.	12-9G-3 Fur Management	Additional funding in the amount of $30.0 was transferred into this account from the Enabling Vote (funds not voted by the Department) to cover expenditures relating to the grant to the Manitoba Registered Trappers Association under the new Canada/Manitoba Co-Operative Wildlife Agreement (T.B. #41A/87-12(a)). Funding 100% recoverable from Canada.
6.	12-9J-2 Commercial Wildlife Management	Additional funding was required due to the signing of the Canada/Manitoba Co-Operative Wildlife Management with Indian People Agreement in the amount of $102.4 which was authorized by T.B. #41A/87-12(a). A request for funding and subsequent payment by the Department of $70.0 was made to partially compensate Messrs. Eisner and Nelson for the closure of the Swan Valley Elk Ranch authorized by T.B. #2A/88-12(c).
7.	12-9J-3 Commercial Wildlife Management	The number of applications from beehive operators for electric bear-proof fencing grants were fewer than anticipated.

Appropriation	Service Current and Capital	1987-88 Actual ($'000)	Estimate ($'000)	Variance ($'000) Over/(Under) Estimate	Explanation Number
12-10	**Surveys and Mapping**				
	(a) Administration				
	Salaries	270.8	265.9	4.9	
	Other Expenditures	51.1	45.3	5.8	
	(b) Legal Surveys				
	Salaries	618.8	642.5	(23.7)	
	Other Expenditures	213.3	360.0	(146.7)	1
	Recoveries	(24.6)	(170.0)	145.4	1
	(c) Control Surveys				
	Salaries	194.4	186.0	8.4	
	Other Expenditures	99.6	126.2	(26.6)	2
	(d) Mapping				
	Salaries	725.6	721.6	4.0	
	Other Expenditures	81.1	95.5	(14.4)	3
	Recoveries	(14.6)	(31.0)	16.4	3
	(e) Map Distribution and Remote Sensing				
	Salaries	355.4	356.6	(1.2)	
	Other Expenditures	318.2	370.2	(52.0)	
	Recoveries	(159.0)	(185.0)	26.0	
	(f) Computer Services and Data Management				
	Salaries	296.8	294.1	2.7	
	Other Expenditures	87.4	96.4	(9.0)	
	TOTAL 12-10	3,114.3	3,174.3	(60.0)	

Explanation Number	Appropriation Number/Name	Explanations
1.	12-10B-2/3 Legal Surveys	Provisions were made in 1987-88 Estimates for probable work to be performed and corresponding recoveries to be made under the Northern Flood Agreement. The work is mainly dependent on the number of requests made by Canada and was lower than anticipated.
2.	12-10C-2 Control Surveys	Inertial surveys were planned for Northern and Southern Manitoba during fiscal year 1987-88. It has been the Department's practice, with the agreement of the Federal Government, to share Federal flying time when doing these surveys. The Federal Government had decided not to fly the northern part of the province. Since all the survey points were established in Southern Manitoba which is the most densely populated area of the province and since helicopter time was determined to be too expensive, it was deemed not essential to complete the Northern portion at this time.
3.	12-10D-2/3 Mapping	Recoveries were over-estimated by $10.0 because a 1986-87 one-time claim for electorial services was also included in the 1987-88 Estimates. Extensive training of personnel on new mapping equipment meant less time to undertake recoverable assignments.

Appropriation	Service Current and Capital	1987-88 Actual ($'000)	1987-88 Estimate ($'000)	1987-88 Variance ($'000) Over/(Under) Estimate	Explanation Number
12-11	**Resource Support Programs**				
	(a) Manitoba Water Commission				
	Salaries	0.0	0.0	0.0	
	Other Expenditures	14.6	42.4	(27.8)	1
	(b) Garrison Diversion Opposition	42.2	25.0	17.2	2
	(c) Conservation Districts Authority				
	Salaries	303.5	305.0	(1.5)	
	Other Expenditures	132.3	138.2	(5.9)	
	(d) Habitat Enhancement Fund	250.0	250.0	0.0	
	(e) Natural Resource Institute Grant	20.0	20.0	0.0	
	TOTAL 12-11	762.6	780.6	(18.0)	

Explanation Number	Appropriation Number/Name	Explanations
1.	12-11A-1 Manitoba Water Commission	Expenditures were much lower than anticipated due to reduced activity by the Commission related to government policy.
2.	12-11B Garrison Diversion Opposition	T.B. #35/87-12(a) authorized the Department to enter into an agreement for the provision of advice on transboundary water matters. The addition of the nuclear water disposal issue had resulted in higher than anticipated consulting costs.

Appropriation	Service Current and Capital	1987-88 Actual ($'000)	Estimate ($'000)	Variance ($'000) Over/(Under) Estimate	Explanation Number
12-12	**Expenditures Related to Capital**				
12-12A	ACQUISITION/CONSTRUCTION OF PHYSICAL ASSETS — N.D.A. — PROVINCIAL				
12-12A-5A	**Northern Park Development**	236.0	242.5	(6.5)	
12-12B	ACQUISITION/CONSTRUCTION OF PHYSICAL ASSETS — OTHER CAPITAL PROJECTS				
12-12B-1	**Administration and Finance**				
	(a) Computer Equipment	90.0	90.0	0.0	
12-12B-2	**Regional Services**				
	(a) Equipment Purchases	60.6	60.6	0.0	
	(b) Regional Infrastructure	104.3	75.0	29.3	1
	(c) Western Regional Resource Road Maintenance	25.0	25.0	0.0	
	TOTAL 12-12B-2	189.9	160.6	29.3	
12-12B-3	**Engineering and Construction**				
	(a) Materials Inventory	(19.9)	150.0	(169.9)	2
	(b) Holding Account — Payments	1,399.1	2,500.0	(1,100.9)	3
	(c) Holding Account — Recoveries	(1,399.1)	(2,500.0)	1,100.9	3
	TOTAL 12-12B-3	(19.9)	150.0	(169.9)	
12-12B-4	**Water Resources**				
	(a) Infrastructure for Enhancement of Agricultural Production	564.4	825.0	(260.6)	4
	(b) Bridge Replacement Program	530.8	515.0	15.8	
	(c) Canada/Manitoba Agri-Food Agreement Washow Bay	474.9	500.0	(25.1)	
	(d) Canada/Manitoba Agri-Food Agreement Pasquia Polder III and Cowan	165.7	1,180.0	(1,014.3)	5
	(e) Town Dykes	714.5	1,300.0	(585.5)	6
	(f) Escarpment and Flood Erosion Control	147.3	140.0	7.3	
	(g) Gimli Diversion	1.1	200.0	(198.9)	7
	(h) Cooks Creek Diversion	336.0	0.0	336.0	8
	(j) Grandview Valley Water Supply	3.8	0.0	3.8	9
	TOTAL 12-12B-4	2,938.5	4,660.0	(1,721.5)	

Appropriation	Service Current and Capital	1987-88			Explanation Number
		Actual ($'000)	Estimate ($'000)	Variance ($'000)	
				Over/(Under) Estimate	
12-12	**Expenditures Related to Capital (Continued)**				
12-12B-5	**Parks**				
	(a) Park Infrastructure Replacement	1,371.9	1,478.9	(107.0)	
	(b) Vacation Home Lots	161.0	180.0	(19.0)	
	(c) Facility Enhancement	910.9	1,000.0	(89.1)	
	TOTAL 12-12B-5	2,443.8	2,658.9	(215.1)	
12-12B-6	**Lands**				
	(a) Cottage Lot Subdivision Upgrading	44.9	45.9	(1.0)	
	(b) Equipment Purchases	22.8	25.0	(2.2)	
	TOTAL 12-12B-6	67.7	70.9	(3.2)	
12-12B-7	**Forestry**				
	(a) Equipment Purchases	25.0	25.0	0.0	
	TOTAL 12-12B-7	25.0	25.0	0.0	
12-12B-8	**Fisheries**				
	(a) Equipment Purchases	28.6	30.0	(1.4)	
	TOTAL 12-12B-8	28.6	30.0	(1.4)	
12-12B-9	**Wildlife**				
	(a) Equipment Purchases	15.6	20.0	(4.4)	10
	(b) Facility Enhancement	36.0	40.0	(4.0)	
	(c) Oak Hammock Marsh	118.8	117.0	1.8	
	TOTAL 12-12B-9	170.4	177.0	(6.6)	
12-12B-10	**Surveys and Mapping**				
	(a) Equipment Purchases	11.5	11.5	0.0	
	(b) Digital Map Conversion	238.5	238.5	0.0	
	TOTAL 12-12B-10	250.0	250.0	0.0	

Appropriation	Service Current and Capital	1987-88 Estimate ($'000)	Variance ($'000)	Explanation ($'000) Over/(Under) Estimate	Number
12-12	**Expenditures Related to Capital (Continued)**				
12-12B-12	**Conservation Districts Authority**				
	(a) Canada/Manitoba Agri-Food Agreement	72.9	120.0	(47.1)	11
	TOTAL 12-12B-12	72.9	120.0	(47.1)	
12-12C	**Capital Grants**				
	Grants to Conservation Districts	1,829.0	1,931.1	(102.1)	
	TOTAL 12-12C	1,829.0	1,931.1	(102.1)	
	TOTAL 12-12	8,321.9	10,566.0	(2,244.1)	
12-12B-11	**Jobs Fund Initiatives**				
	(a) Sectoral Projects — Forest Renewal	0.0	0.0	0.0	
	(b) Canada/Manitoba Forest Renewal Management	810.5	1,000.0	(189.5)	
	(c) Recoverable from Jobs Fund	(810.5)	(1,000.0)	189.5	
	TOTAL 12-12B-11	0.0	0.0	0.0	

Explanation Number	Appropriation Number/Name	Explanations
1.	12-12B-2B Regional Infrastructure	T.B. #21/87-12(a) authorized the purchase of a 200' x 297' lot in Steinbach, as well as, the construction of a fence estimated to be $30.0. This was not anticipated at the time the 1987-88 Estimates were prepared.
2.	12-12B-3A Materials Inventory	This is a revolving inventory account to facilitate the stockpiling of certain materials. As materials are charged to a work order the fund is replenished. 1986-87 charges were inadvertantly credited during the 1987-88 fiscal year.
3.	12-12B-3B/C Holding Account Payments/ Recoveries	This holding and subsequent recovery account are dependent on the various programs being undertaken by the Engineering and Construction Branch and at no time will the amount recovered vary from the amount placed on hold.

Explanation Number	Appropriation Number/Name		Explanations
4.	12-12B-4A	Infrastructure For Enhancement of Agricultural Production	The final billing for the Province's share of the reconstruction costs of the C.P. Rail bridge over Grassmere Creek. Drain was not received before the end of 1987-88. The bridge reconstruction over Fish Line Drain to be undertaken in 1987-88 by Highways on behalf of Natural Resources was delayed.
5.	12-12B-4D	Canada/Manitoba Agri-Food Agreement Pasquia Polder III and Cowan	Funds in the amount of $680.0 were approved for the Pasquia Polder III project. Work could not proceed as scheduled due to disagreement by local native groups and subsequent concerns about the projects by Canada. No work was carried out on the Cowan Project which was funded at $100.0, as the design report had not yet been completed in time to begin construction. Cabinet Minutes No. 1(b) May 6, 1987 authorized the establishment of Cooks Creek Diversion account and funding in the amount of $400.0 was transferred from 12-12B-4D.
6.	12-12B-4E	Town Dykes	Due to problems encountered in acquiring right-of-way for the Ste. Rose du Lac flood protection project, construction contracts could not be tendered or carried out in 1987-88. Disagreements with local authorities on dyke locations, prevented work scheduled on the Emerson and St. Adolphe projects from being performed.
7.	12-12B-4G	Gimli Diversion	Delays in receiving a copy of the Department of Highways plan for upgrading P.T.H. #8 in the same area as the proposed Gimli Diversion project caused a stall in design work and a subsequent delay in construction expected to be undertaken in 1987-88.
8.	12-12B-4H	Cooks Creek Diversion	T.B. #30/87-12(b) authorized the Department to enter into Contract No. 329 with Edie Construction Ltd. for the construction of 2.2 km of the Cooks Creek Diversion. Cabinet Minute No. 1(b) May 6, 1987 authorized the establishment of Cooks Creek Diverison account and funding in the amount of $400.0 was transferred from 12-12B-4D to continue with this on-going drainage improvement program.
9.	12-12B-4J	Grandview Valley Water Supply	T.B. #2B/88-12(a) authorized Natural Resources to transfer $4.0 from 12-12B-4C into this account to cover the Departments share of expenditures incurred by Highways for remedial work done on the Grandview Reservoir.
10.	12-12B-9A	Equipment Purchases	Provision was made in the 1987-88 Estimates for office renovations which were estimated by Government Services to cost $5.6 but which actually resulted in a payment of $3.0. It was originally anticipated that $1.0 would be used for the purchase of an airboat for Wildlife Regional Management. This did not occur.
11.	12-12B12A	Canada/Manitoba Agri-Food Agreement	A surplus in funding was due to a delay in the awarding of consulting contracts for the development of management plans for the Whitemud and Cooks Creek Conservation Districts.

Legislators' Index

The department's estimates are usually reviewed in the Legislature in the following order. Please refer to the appropriate pages for the discussion of each branch's activities.

	Page
Administration and Finance	107
• Communications, Economics and Planning	107
• Administrative Services Division	107
Regional Services	108
Engineering and Construction	110
Water Resources	111
Parks	112
Lands	113
Forestry	114
Fisheries	115
Wildlife	116
Surveys and Mapping	118
Conservation Districts Authority	119